

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 5, 1890.

PART IB.

ORDERS BY THE LIEUT.-GOVERNOR OF BENGAL.

MUNICIPAL AND LOCAL.

NOTIFICATION.

The 25th January 1890.—The following list showing the number of members of Local Boards to be elected for each of the thanas in the district of Mymensingh is published for general information, under Rule 19 of the Rules made under clause (*a*), section 138 of the Bengal Local Self-Government Act, 1885:—

District.	Names of Local Boards.	Names of Thanas.	Number of members to be elected for the thana.
Mymensingh	Sudder for Mymensingh.	Mymensingh or Nasirabad ...	2
		Ishvargunge	2
		Fulpur	2
		Guffergong	2
		Phulbariah	2
	Tangail ...	Tangail	4
		Gopalpur	3
		Kalihati	1
	Jamalpur ...	Jamalpur	2
		Sherepur	1
		Dewangunge	2
		Nalitabari	1
	Kishoregunge ...	Kishoregunge	3
		Nikly	3
		Bazitpur	4
	Netrokona ...	Netrokona	3
		Durgapur	2
		Kenduah	3

This notification cancels the notification, dated the 1st February 1887, published at page 22, Part IB. of the *Calcutta Gazette* of the 2nd idem.

H. J. S. Cotton,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 25th January 1890.—The following list showing (*a*) the number of members fixed by the Lieutenant-Governor under sections 7 and 8, respectively, of the Bengal Local Self-Government Act, 1885, for the District and the Local Boards established in the district of Mymensigh, and (*b*) the number of members of the District Board to be elected by each of the Local Boards in the distric , is published for general inf rmation :—

District Board of	Number of members fixed for the District Board.	Local Board of	Number of members fixed for the Local Board.	Number of members of District Board to be elected by the Local Board.
Mymensingh ...	24	Mymensingh ...	15	8
		Jamalpur ...	9	2
		Tangail ...	12	3
		Kishoregunge ...	15	2
		Netrokona ...	12	2

This notification cancels the notification, dated the 1st February 1887, published at page 22, Part IB. of the *Calcutta Gazette* of the 2nd idem.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 29th January 1890.—It is hereby notified that, under section 11. Act III (B.C.) of 1885, the Lieutenant-Governor is pleased to appoint the following gentlemen to be members of the several Local Boards in the district of Moorshedabad : —

Local Boards.	Names of members.
Sudder ..	Baboo Kalidas Mukerji. „ Gobinda Jiban Hazra. „ Charu Kristo Chowdhury. „ Shama Churn Bose. „ Pulin Chundra Sanyal.
Lalbagh ...	Salaman Kudr Syed Wahed Ali. Mr. G. Rose. Munshi Rezaulla.
Kandi ...	Baboo Nilmadhub Rai „ Surendra Nath Rai Chowdhuri. Munshi Keramutulla Chowdhuri. Baboo Kristonath Rai Chowdhuri.
Jungipore	Baboo Kristoballav Rai. Mr. W. R. Rice. Baboo Harilall Dass. Mr. C. B. Walton.

2. The Lieutenant-Governor is pleased to appoint the following gentlemen, under section 10 of the Act, to be members of the Local Boards mentioned against their names :—

Local Boards.	Names of members.
Sudder ...	Mr. W. F. Macdonnell. Baboo Deviprosad Tewari. „ Panchuram Mandal. Mr. E. B. Hills. Sabkutulla Hazi.
Lalbagh ...	Baboo Moheshnarain Roy. „ Amrita Lal Kar. „ Baikantonath Adhicari. Bhagwan Chundra Chatterjee.
Kandi ...	Baboo Bistu Chandra Ganguli. Moulvi Razel Khair *alias* Raja Mean.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 29th January 1890.—Whereas a notification dated the 27th September 1889, declaring the intention of the Lieutenant-Governor to extend the provisions of Act IV (B.C.) of 1865 (an Act for the prohibition of the practice of inoculation) to the whole of the district of Chumparun was published at page 217, Part IB. of the *Calcutta Gazette* of the 2nd October 1889, and whereas no valid objection has been raised within one month from the date of the publication of the notification within the district, it is hereby notified that, in the exercise of the powers vested in the Local Government under section 3 of the Act, the Lieutenant Governor declares that the provisions of the Act be extended to the said district.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 1st February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Dr. E. Bovill, Civil Surgeon of Chumparun, to be a Commissioner of the Motihari Municipality in that district, *vice* Dr. R. D. Murray, transferred.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 1st February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Sudder Local Board, in the district of Bhagulpore, under section 29 of Act III (B.C.) of 1885, of Baboo Kanai Lall Singh to be their Chairman, *vice* Mr. C. P. Carpenter, C.S., transferred.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 1st February 1890.—It is hereby notified that the Lieutenant-Governor approves the election, under section 27 of Act III (B.C.) of 1884, by the Commissioners of the Narsingunge Municipality, in the district of Dacca, of Mr. W. Rattray to be their Chairman, *vice* Mr. H. F. Wilson, resigned.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 1st February 1890.—It is hereby notified that the Lieutenant-Governor approves the election, under section 27, Act III (B.C.) of 1884, by the Commissioners of the Manicktollah Municipality, in the district of the 24-Pergunnahs, of Kumar Gopendra Krishna Deb Bahadur, C.S., to be their Chairman, *vice* Mr. Kedar Nath Roy, resigned.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 3rd February 1890.—Whereas a notification, dated the 18th October 1889, declaring the intention of the Lieutenant-Governor to sanction the imposition, under section 85 *b*), Act III (B.C.) of 1884, by the Commissioners of the South Suburban Municipality, in the district of the 24-Pergunnahs, of a rate on the annual value of all holdings situated within the Municipality, in lieu of the tax upon persons under clause (*a*) of the said section now imposed, was published at page 226, Part IB of the *Calcutta Gazette* of the 23rd idem, and whereas no objection has been raised to the proposed measure, it is hereby notified for general information that, in the exercise of the power vested in the Local Government by section 85 of the said Act, and in accordance with the recommendation of the Commissioners of the South Suburban Municipality made at a meeting, the Lieutenant-Governor sanctions the imposition by the Municipal Commissioners of the said rate within the limits of the said Municipality.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 3rd February 1890.—It is hereby notified for general information that the Lieutenant-Governor intends, in the exercise of the power vested in the Local Government by section 221 of Act III (B.C.) of 1884, and in accordance with the recommendation of the Commissioners of the North Dum-Dum Municipality, in the district of the 24-Pergunnahs, made at a meeting, to extend the provisions of Part IX of the said Act to the villages of Kadihatti and Nimta in Wards I and II respectively of the above Municipality, unless good reasons are shown to the contrary within one month from the date of the publication of this notification within the Municipality.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal

NOTIFICATION.

The 3rd February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Mr. J. Windsor, C.S., to be the Chairman of the Bettiah Municipality, in the district of Chumparun, *vice* Mr. H. Luson, transferred.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 3rd February 1890.—It is hereby notified for general information that in accordance with the recommendation of the Commissioners of the Garwah Municipality in the district of Lohardugga, made at a meeting, and in the exercise of the power conferred on him by section 9 of Act III (B.C.) of 1884, the Lieutenant-Governor intends to revise the southern and eastern boundaries of the said Municipality, unless good reasons are shown to the contrary within one month from the date of the publication of this notification within the Municipality. The revised southern and eastern boundaries are as follows:—

On the South.—From Jhanukia Ahar to the northern boundary land-mark of pucca terrace of mouzah Tenar on the right bank of the river Danroo, and thence along the right bank of the same river to the point where it meets and is crossed by the Gurwa-Peska village road.

On the East.—The Hariyara Sote from the trijunction of villages Sone Purwa, Bhoratia, and Chetna to the junction of the Hariyara Sote with the Danroo river, and thence straight to the point of Jhanukia Ahar, where it meets the southern boundary.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

ERRATUM.

The 4th February 1890.—In the notification dated 7th January 1890, containing the names of the elected and appointed members of Local Boards in the Bankoora district, published at pages 6 and 7 of Part IB of the *Calcutta Gazette* of the 8th idem, *for* "Baboo Soron Chandra Pal" *read* Baboo "Poran Chundra Pal."

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 30th January 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the expense of the Dacca Municipality for a public purpose, viz. for the extension of the Jubilee Street in Uari, in the town of Dacca, pergunnah Jahangirnagar, zillah Dacca, it is hereby declared that for the above purpose a piece of land, measuring more or less, 3 cottahs of standard measurement, is required. The land is bounded on the North by Uari Khal; on the East by Jagabandhu Karmakar's house; on the South by Bhojohari Shaha's Street; and on the West by Dwarika Nath Chakravarti's land.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 5, 1890.

PART II.

Advertisements.

[N.B.—Advertisements, Notices, &c., intended for insertion in this part of the Gazette, cannot be received after Noon on Monday.]

LAND SALE NOTICES.

NOTICE is hereby given that the undermentioned plots of the Nizamut lakhiraj State lands situated in the district of Nuddea will be put up to sale at the Collectorate of Nuddea on the 13th March 1890, corresponding with 1st Chyte 1296 B.S.

The purchasers of the plots will be subject to the following conditions :—

I.—The plots will be sold revenue free to the highest bidders above the upset price.

II.—The sale to be subject to existing leases and to the rights conferred by the settlement proceedings and by the laws in force, and purchasers to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the Revenue authorities.

III.—If the amount of the purchase-money do not exceed Rs. 100, the whole amount will be paid down at once.

IV.—If the amount of the purchase-money exceed Rs. 100, one-fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the fifteenth day after the sale, reckoning the day of sale as one, or, if that day be a close holiday, then by noon of the first succeeding office day, the sale to be cancelled (the sum deposited being forfeited to Government), and the estates to be again put up for sale at the risk of the defaulting purchasers after issue of advertisement as in the case of original sale.

V.—The purchasers shall be put in possession on receipt of the orders of the Collector approving of the sales, but such possession shall be liable to be disturbed in case the final confirmation of the Board of Revenue should not be accorded to the proceedings.

Consecutive number of plot.	Name of estate.	Mouzah.	Pergunnah.	Approximate area in bighas.	Annual assessment.	Upset price.	Boundaries.	Remarks.
				B. K. CH.	Rs. A. P.	Rs. A. P.		
1	Aujongachi in Bartoil.	Bahaliapara in Bartoil.	Mohamedshahye.	31 7 14	12 0 0	313 5 0	North, east, and south of jote lands of Hagooram Boi and others of Bartoil; west of the confines of mouzah Belgharia.	Mourashi jote of Banesh Chandra Sarkar of Belgachi and dwelling-house of Gopal Chandra Ghose of Bartoil.
2	Aujongachi ...	Aujongachi ...	Taragooniah	394 1 10	93 0 0	3,936 11 0	West of the dwelling-houses of Chuni Sheikh and Nabin Mandal Ghose and others, ryots of the zemindars of Chitna; north of the nij-jote lands of the aforesaid zemindars; east of the confines of Khairpur; south of the nij-jote lands of the aforesaid zemindars.	Mourashi jote of Banesh Chandra Sarkar of Belgachi.
3	Dak Adda ...	Kulberia ...	Plassey ...	1 4 8	2 12 6	40 0 0	East and north of a public road; south and west of jote lands of Brojo Lal Rai.	Plot No. I, khas Nizamut.
							South of jote lands of Gurudoyal Sinha and Bhikoo Mandal; east and north of jote lands of Punchanan Rai; west of jote lands of Bani Mandal.	Plot No. II, khas Nizamut.

Nuddea Collectorate, the 14th January 1890.

N. K. Bose, for Collector.

NOTICE is hereby given that the undermentioned plot of the Nizamut lakhraj State lands, situate in the district of 24-Pergunnahs, will be put up to sale at the Collectorate of the 24-Pergunnahs on Friday, the 28th March 1890—

The purchaser of the plot will be subject to the following conditions :—

I.—The plot will be sold revenue-free to the highest bidder above the upset price.

II.—The sale to be subject to existing leases, and to the rights conferred by the settlement proceedings and by the laws in force, and purchaser to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the revenue authorities.

III.—If the amount of the purchase-money do not exceed Rs. 100, the whole amount will be paid down at once.

IV.—If the amount of the purchase-money exceed Rs. 100, one fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the 15th day after the sale, reckoning the day of sale as one, or if that day be a close holiday, then by noon of the first succeeding office day, the sale to be cancelled (the sum deposited being forfeited to Government), and the plot to be again put up for sale at the risk of the defaulting purchaser after issue of advertisement as in the case of original sale.

V.—The purchaser shall be put in possession on receipt of the orders of the Collector approving of the sale, but such possession shall be liable to be disturbed in case the final confirmaton of the Board of Revenue should not be accorded to the proceedings.

Name of estate.	Mouzah.	Pergunnah.	Approximate area.	Annual assessment.	Upset price.	Boundaries.	Remarks.
			B. K. CH.	Rs. A. P.	Rs. A. P.		
Dak Adda	Chitpore ...	Amirabad...	0 3 6	16 14 0	506 4 0	South of the dwelling house of Jitu Dhobi, east of the tank belonging to Zebunnissa Begum, north of the dwelling house of Talemun Jemadar, and west of a public road and the sepoy post.	Dwelling-house of Kudroo Dhobi of Chitpore.

K. N. Roy, Deputy Collector, for Collector on tour.

Serial No.	No. of tenures in register No. I.	Names of tenures and their situation.	Annual rental.		The amount of arrears for which the tenures to be sold.			Remarks.
			Rent.	Cess.	Rent.	Cess.	Total.	
		Thana town mouzah Bakalya, mehal Noabad.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1	887	20134/559 Taluq Manindra Chandra Ghose and others.	3,373 6 0	226 9 0	843 0 0	56 11 0	899 11 0	
		Mouzah ditto, thana ditto.						
2	805A	20134/559(৯) Taluq Khetra Moni Dasi and others.	1,135 11 9	44 6 0	284 0 0	11 1 0	295 1 0	The entire taluqa will be sold.
		Thana Futikchir, mouzah Jouzkhala, mehal Noabad.						
3	4618	23878/588 Taluq Obedar Rahaman Khan	2,344 0	102 9 0	693 0 0	5 5 9	698 5 9	

Chittagong, the 14th January 1890. C. H. ALLEN, for Offg. Collector.

Statement of the Affairs of the Bank of Bengal for the week ending 28th January 1890.

LIABILITIES.

		Rs.	A.	P.
Capital paid up		2,00,00,000	0	0
Reserve Fund		58,00,000	0	0
Public Deposits at Head Office ... ... Rs	1,01,07,670 3 3			
Ditto ditto at Branches ,,	87,96,504 9 1	1,89,04,174	12	4
Other Deposits at Head Office and Branches		3,11,73,418	13	9
Bank Post Bills, &c.		4,85,932	4	6
Sundries		8,55,813	2	0
Rupees ...		7,72,19,339	0	7

ASSETS.

		Rs.	A.	P.
Government Securities		16,53,682	9	0
Other authorized Investments		76,58,046	0	0
Loans on Government and other authorized Securities		1,69,79,904	13	7
Accounts of credit on ditto ditto		1,01,06,099	4	3
Bills discounted and purchased		2,01,24,519	8	5
Balances with other Banks		10,29,649	13	5
Bullion		3,16,594	8	1
Dead Stock		12,28,095	13	2
Stamps		13,307	11	0
Sundries		3,49,920	4	10
		5,94,59,820	4	6
Cash and Currency Notes at Head Office ... Rs.	76,32,557 7 7			
Cash and Currency Notes at Branches ... ... ,,	1,01,26,961 4 3	1,77,59,518	11	10
Rupees ...		7,72,19,339	0	7

BANK OF BENGAL,
Calcutta, 30th January 1890.

R. L. BIRD, Chief Accte.
Rate for Demand Loans 9 per cent.
Percentage 32·6.

By order of the Directors,
W. D. CRUICKSHANK,
Secy. and Treasurer.
(3495—1)

Commissioners for making Improvements in the Port of Calcutta.

NOTICE

UNDER SECTION 69 OF ACT V (B.C.) OF 1870.

THE following packages, landed at the Jetties from the undermentioned ships, have been removed to the Commissioners' Import Warehouse, where they remain at the risk and expense of the owners. If not cleared within two months from the date stated against each item, they will be sold under section 72 of the said Act :—

Date of removal to Import Warehouse.		Number, mark and description.	Consignees.	Ships.
1890.				
Jan.	15	25 Cases, D & Co. in a diamond	Order	S S. "Khedive."
,,	15	10 Cases, D in a diamond	Ditto	Ditto.
,,	15	3 Packages, A S P	Ditto	Ditto.
,,	15	1 Case, Major Alexander	Addressed	Ditto.
,,	15	18 Cases, D. W. Butchart, Esq., care of W. Magor, Esq.	Ditto	Ditto.
,,	15	2 Cases, A A by S O B Co., Colombo	Order	Ditto.
,,	15	1 Case, B & Co. in a diamond, U H & C outside ...	Ditto	Ditto.
,,	15	1 Case, 4621 in a diamond, B B & Co. below ..	Ditto	Ditto.
,,	15	1 Case, Co-operative Pharmacy	Ditto	Ditto.
,,	15	3 Packages, 1373 in a diamond	Ditto	Ditto.
,,	15	1 Case, G & C	Ditto	Ditto.
,,	15	1 Case, G. Officer, Mess Brigade	Addressed	Ditto.
,,	15	1 Drum, I A by S in a diamond	Order	Ditto.
,,	15	1 Case, J C in a diamond, L S & Co. outside ...	Ditto	Ditto.
,,	15	1 Case, J K G & Co. in a block, B S & Co. outside	Ditto	Ditto.
,,	15	1 Drum, Joyhing	Ditto	Ditto.
,,	15	3 Cases, L O C K E	Ditto	Ditto.
,,	15	1 Case, M M by 77 in a diamond	Ditto	Ditto.
,,	15	1 Case, H. J. Momisey, Esq.	Addressed	Ditto.
,,	15	1 Case, N B & M Y in a block	Order	Ditto.
,,	15	20 Cases, N G	Ditto	Ditto.
,,	21	10 Cases, 239 in a diamond, N P & G outside ...	Ditto	Ditto.
,,	21	1 Case, Major J. O. F. Nutt	Addressed	Ditto.
,,	21	15 Cases, 27th P L in a diamond	Order	Ditto.
,,	21	2 Packages, 1 by R C D in a triangle	Ditto	Ditto.
,,	21	1 Case, R B N by 244 in a diamond, J below ...	Ditto	Ditto.
,,	21	2 Cases, R W or W R in a diamond	Ditto	Ditto.
,,	21	1 Package, S K D in a diamond	Ditto	Ditto.
,,	21	2 Packages, 2000 in a triangle, S D & Co. below ...	Ditto	Ditto.
,,	21	2 Packages, S H M J in a diamond, U H & Co. outside.	Ditto	Ditto.
,,	21	2 Packages, 2044 in a triangle, S D & C below ...	Ditto	Ditto.
,,	21	3 Packages, T D P & Co. in a diamond, G A & Co. outside.	Ditto	Ditto.
,,	21	7 Packages, 273 in a diamond, W T H B below ...	Ditto	Ditto.
,,	21	2 Packages, 908 in a diamond, W N & Co. outside	Ditto	Ditto.
,,	21	1 Package, W L	Ditto	Ditto.
		1 Parcel, the Secretary, Christian Knowledge Society.	Addressed	Ditto.
	21	1 Parcel, Revd. J. W. Thomas	Ditto	Ditto.
	21	1 Parcel, H. W. Pickford, Esq.	Ditto	Ditto.
	21	1 Parcel, India Life of Stephen, Baptist Mission House.	Ditto	Ditto.
	21	1 Case, W. F. Burrows, Esq.	Ditto	Ditto.
	16	5 Cases, D & Co. in a diamond	Ditto	S S. "Dorunda."
	16	15 Cases, D in a diamond	Ditto	Ditto.
	16	25 Cases, J K G	Ditto	Ditto.
	16	1 Drum, K & Co. or no mark	Order	Ditto.
	16	4 Cases, B L D & Co	Ditto	Ditto.
	16	7 Cases, L O C K E	Ditto	Ditto.
	16	1 Case, M in a diamond, B M & Co. outside	Ditto	Ditto.
	16	1 Case, M A in a diamond	Ditto	Ditto.
	16	5 Cases, N P D	Ditto	Ditto.
	16	1 Case, R M by 38 in a diamond ...	Ditto	Ditto.
	16	2 Cases, S D by 257 in a diamond, J below	Ditto	Ditto.
	16	1 Cask, B C	Ditto	Ditto.
	16	10 Cases, 408 in a diamond, C B below ...	Ditto	Ditto.
	16	1 Case, diamond or no mark ...	Ditto	Ditto.
	16	1 Case, 294 in a diamond	Ditto	Ditto.
	16	1 Case, H C G & Co. in a diamond, S & S C below.	Ditto	Ditto.
	16	1 Case, H J B by 252 in a diamond, J below ..	Ditto	Ditto.
	16	50 Cases, I G by 74 in a diamond, M B L T outside	Ditto	Ditto.
	16	12 Packages, no mark	Ditto	Ditto.
	16	3 Packages, Nahartati in a block ...	Ditto	Ditto.
	16	1 Case, P C B in a diamond ...	Ditto	Ditto.
	16	1 Cask, S S by 294 in a block ...	Ditto	Ditto.
	16	2 Bales, diamond T top	Ditto	Ditto.
	16	1 Case, W C D in a triangle, C & B below	Ditto	Ditto.

Date of removal to Import Warehouse.		Number, mark and description.	Consignees.	Ships.
1890.				
Jan.	24	2 Cases, 560 in a diamond, W below	Order ...	S. S. "Dorunda."
„	24	1 Parcel, Mrs. Ashing Thomson, care of Planters' Stores	Addressed ...	Ditto.
„	24	1 Parcel, M in a diamond, B M & Co. outside ...	Order ...	Ditto.
„	24	1 Case, T S M	Ditto ...	Ditto.
„	24	1 Keg, X in a circle	Ditto ...	Ditto.
„	24	1 Keg, no mark Upper Assam	Ditto ...	Ditto.
„	24	1 Drum, R & Co., Madras below	Ditto ...	Ditto.
„	24	2 Drums, O & Co. in a diamond, Madras below ...	Ditto ...	Ditto.
„	24	1 Iron axle, H C M by C in a diamond, O S top ...	Ditto ...	Ditto.
„	24	1289 Iron plates, A & B	Ditto ...	Ditto.
„	24	8 Bars angle iron, S A K in a diamond or no mark	Ditto ...	Ditto.
„	24	9 Bars T-iron, S or no mark	Ditto ...	Ditto.
„	24	94 Iron plates, B	Ditto ...	Ditto.
„	17	2 Cases, A S W & Co. by A	Ditto ...	S. S. "Pallas."
„	17	2 Cases, 184 in a diamond, A B & Co. outside ...	Ditto ...	Ditto.
„	17	3 Cases, F E R E in a diamond	Ditto ...	Ditto.
„	17	1 Case, Messrs. Hoare, Miller & Co.	Addressed ...	Ditto.
„	17	3 Bars flat iron, D X or no mark	Order ...	Ditto.
„	17	11 Earthen pipes, J B	Ditto ...	Ditto.
„	17	5 Cases, K V in a diamond, Cawnpore below ...	Ditto ...	Ditto.
„	17	3 Cases, L O C K E	Ditto ...	Ditto.
„	17	1 Case, N & Co.	Ditto ...	Ditto.
„	17	1 Case, 500 in a diamond, W L below	Ditto ...	Ditto.
„	17	3 Bundles nail rod iron, 1 white or no mark ...	Ditto ...	Ditto.
„	17	9 Bundles nail rod iron, 1 red or no mark ...	Ditto ...	Ditto.
„	22	1 Case, N C B by 48 in a block	Ditto ...	S. S. Rudeshimer."
„	22	7 Cases, O & H	Ditto ...	Ditto.
„	22	1 Case, 7860 in a diamond, J S & G outside ...	Ditto ...	Ditto.
„	22	1 Case, C S	Ditto ...	Ditto.
„	22	17 Iron joists, R or on mark	Ditto ...	Ditto.
„	22	25 Packages, no mark	Ditto ...	Ditto.
„	22	1 Iron joist, S B S or no mark	Ditto ...	Ditto.
„	22	1 Iron joist, K D or no mark	Ditto ...	Ditto.
„	22	1 Case, I in a diamond, B B & Co. below ...	Ditto ...	Ditto.
„	22	1 Case, J J H	Ditto ...	Ditto.
„	22	3 Packages, G. W. Hungerford, Esq., care of Messrs Jardine, Skinner & Co.	Addressed ...	S. S. "Scotia."
„	22	20 Packages, W L	Order ...	Ditto.
„	22	2 Casks, T	Ditto ...	Ditto.
„	22	1 Bale, S & Co. in a circle, H M top ...	Ditto ...	Ditto.
„	22	2 Cases, H H in a diamond, C below ...	Ditto ...	Ditto.
„	22	1 Sample, Messrs. Gopee Natha Misser & Co. ...	Addressed ...	Ditto.
„	22	1 Sample, Messrs. T. N. Singh & Son, 4, Clive Ghât Street.	Ditto ...	Ditto.
„	22	93 Iron rain-water pipes, C or no mark ...	Order ...	Ditto.
„	22	7 Sheets iron, R B or no mark ...	Ditto ...	Ditto.
„	22	1 Case, T A S in a heart, P top ...	Ditto ...	Ditto.
„	23	6 Iron plates, no mark	Ditto ...	S. S. "Thorndale."
„	23	3 Iron plates, Z	Ditto ...	Ditto.
„	23	4 Iron plates, W H	Ditto ...	Ditto.
„	23	10 Iron plates, K L	Ditto ...	Ditto.
„	23	4 Iron plates, B C	Ditto ...	Ditto.
„	23	165 Iron plates, L M	Ditto ...	Ditto.
„	23	122 Iron plates, K L M	Ditto ...	Ditto.

Port Commrs.' Office, Calcutta, the 1st February 1890. (3500—1) G. H. SIMMONS, Vice-Chairman.

Notice.

IN continuation of notice, dated the 9th October 1889 published at page 1656, Part II of the *Calcutta Gazette* of 30th October 1889, regarding the Barque *Grosvener*, it is further notified that the said vessel, with all her masts, sails, gear, and appurtenances which may be on board her on the 19th day of April 1890, will be sold by auction to the highest bidder on Saturday, the 19th of April 1890.

The sale will be held at the Port Office, Chittagong, and will commence at 3 P.M.

Terms—25 per cent. on fall of the hammer if desired by Receiver of Wrecks: the balance within a week of sale and before taking delivery. If the purchaser fails to pay the balance within seven days from date of sale, the vessel will be re-sold at his risk and expense. The vessel can be inspected at Chittagong by application to the Receiver of Wrecks.

E. GOOD, Receiver of Wrecks.

(3498—4)

WANTED a Sub-Overseer for the District Works, Maldah, on Rs 40 pay and Rs. 10 horse allowance. None need apply who is not a passed Sub-Overseer and has sufficient practical experience in road works. All applications, with copies of testimonials, must reach the undersigned on or before the 10th February 1890.

JOGENDRO NATH GHOSE, District Engineer.

(3478—2)

Notice.

WANTED a Record-keeper for the Maldah Collectorate on a salary of Rs. 40 rising to Rs. 60 by biennial increments of Rs. 2.

No one need apply who has not had previous experience in a similar post. The selected candidate is to furnish security to the extent of Rs. 500, either in Government Promissory Notes or in cash.

Applications will be received up to 25th February next.

POORNO CHUNDRA CHATTERJEE,
Deputy Collector in charge.

Excise.

NOTIFICATION.

1. The right of retail sale of the Liquors and Drugs specified below will be put up to auction at the Onium Sale-room, Board of Revenue, 2, Bankshall Street, on Tuesday, the 11th February 1890, and subsequent days, in the following order :—

Name of article.	Date of sale.
Country Spirit	Tuesday, 11th February 1890, commencing at 11 A.M. Wednesday, 12th ditto ditto ditto. Thursday, 13th ditto ditto ditto.
Rum and Imported Liquor by glass ...	Friday, 14th ditto ditto ditto.
Ganja, Siddhi, Charas, Majum ...	Monday 17th ditto ditto ditto. Tuesday, 18th ditto ditto ditto.
Opium, Madak, Chandu	Wednesday 19th ditto ditto ditto. Thursday, 20th ditto ditto ditto.
Tari	Friday, 21st ditto ditto ditto. Saturday, 22nd ditto ditto ditto.

2. A complete list of all the shops for which licenses will be offered and a copy of each form of license are open to general inspection at the Office of the Superintendent of Excise Revenue, 4, Bankshall Street, and the number of these shops is not under any circumstances to be increased during the term of three years ending the 31st March 1893, except under the sanction of the Commissioner of Excise, Bengal, in each case. The Superintendent of Excise Revenue, however, reserves to himself the right, in case of combination, or for other cause, to transfer, before its settlement, any shop from the locality specified, to some other locality in the neighbourhood, being within a distance of 150 yards from the advertised shop or premises, provided that in cases of re-sale the transfer does not bring the shop within a quarter of a mile of any other similar shop which has been settled at any previous sale and the term of whose license is unexpired.

3. It is not at present intended to open any other shop during the term of the license; but the Superintendent of Excise Revenue does not absolutely bind himself in this respect. On special cause shown, and with the sanction of the Commissioner of Excise, Bengal, in each case, the number of shops may be increased: provided, however, that, whenever a new shop is opened, it will be optional to the holder of a similar license for the sale of Liquor or Drugs, if his shop is within a quarter of a mile of the new shop, to surrender his license without forfeiting his advance, when the Superintendent of Excise Revenue is to re-settle the shop by auction or otherwise.

4. The right of retail sale of the Liquors and Drugs is to be put up to auction at upset prices sanctioned by the Commissioner of Excise, Bengal.

5. The right of retail sale of the Liquors and Drugs is to be put up to auction in separate lots of one or more shops either in the order specified in the list, or in such other order as the officer conducting the sale may deem fit. When one lot has been sold, the next lot is not to be put up until the sum payable in advance on account of the lot already sold has been actually paid: provided, however, that where the sum payable exceeds Rs. 25, a promissory note may be taken from any respectable and well-known purchaser in lieu of cash payment.

6. The purchasers of the right of retail sale of Country Spirit, Rum, and Imported Liquors are entitled to sell Imported Liquors by the glass only, the liquor to be drunk on the premises.

7. The auction is to be held subject to the following conditions :—

(*a*)—That the Superintendent of Excise Revenue does not bind himself to accept the highest or any bid.

(*b*)—That the settlement with each accepted purchaser will, in Calcutta and the Suburbs, be contingent on the production by him of the usual Police certificate or license as the case may be, viz.—

For Excise licenses for—
- Doasta ...
- Rum ...
- Imported Liquors by glass
- Tari ... ...
- Ganja ...
- Siddhi ...
- Charas ...
- Majum ...

If to be held in Calcutta, a Police certificate in the form prescribed by section 36, Act IV (B.C.) of 1866, must be produced; and if to be held in the Suburbs, a Police certificate in the form prescribed by section 19, Act II (B.C.) of 1866, must be produced.

For Excise licenses for—
- Opium ...
- Madak ...
- Chandu ...

If to be held in Calcutta, a Police license in the from prescribed by section 39, Act IV (B.C.) of 1866, must be produced; and if to be held in the Suburbs, a Police license in the form prescribed by section 22 of Act II (B.C.) of 1866 must be produced.

(*c*)—That the person accepted as the purchaser is to state in writing, within seven days from the date of settlement, in what building he purposes to open his shop, and is at the same time to submit a plan showing clearly and distinctly what building or portion thereof he desires to be covered by the license, it being understood that the removal of shops to other premises than those named in the list attached to this notification will be contingent on the approval of both the Excise and Police authorities, and that any sum which has been paid as an advance of the license fee under the provisions of clause (*d*) of these conditions will be returned to any person to whom a license may be subsequently refused for Police reasons.

(*d*)—That the term of the license is to be for three years ending the 31st March 1893, and that, except in the case of Tari, the license fee for that period is to be paid in advance in the following instalments:—namely, the sum equivalent to the fee for two months, at the time of sale, and one month's fee on the date on which the currency of the license commences, and one month's fee on the 1st day of every succeeding month, until the whole of the fee due on the license shall have been paid. In the case of Tari only one month's fee is to be paid in advance at the time of sale, and fifteen days' fee on the date on which the currency of the license commences, and the rest of the fee in half-monthly instalments, viz., on the 1st and 16th day of every month, until the whole of the fee due on the license shall have been paid. This condition is to be strictly enforced in future, and failure to comply with it is to be met by immediate cancelment of the license.

(*e*)—That the purchaser is not to be entitled to receive back any portion of his advance in the event of his shop being closed before the expiration of the term of the license on violation of any of the conditions of the license, or his being convicted of a non-bailable criminal offence, or of any offence against the Excise laws or rules; and in the case of the surrender of a license under Act VII (B.C.) of 1878, the licensee is to give fifteen days' previous notice in writing to the Superintendent of Excise Revenue, and pay a sum equal to the license fee for fifteen days, over and above the amounts already paid in advance; and in the case of the surrender of a license under Act I of 1878, the licensee is to give one month's previous notice in writing to the Superintendent of Excise Revenue, and pay such fine not exceeding six months' license fees as the Superintendent of Excise Revenue may adjudge, over and above the amounts already paid in advance.

(*f*)—That the currency of the license is to commence on the 1st April 1890 on which date the purchaser is to open his shop, in all respects prepared for the accommodation of customers, to be certified by an Excise Officer—failure to comply with this condition is to be met by the immediate cancelment of the license and the forfeiture of the deposit, except in the case of delay caused by the non-issue of the Police certificate or Police license, for which a reasonable extension of time may be allowed upon application and cause shown to the Superintendent of Excise Revenue.

(*g*)—That where the amount of the sum payable in advance is required to be paid at once in cash, and the bidder fails to make such payment, the officer conducting the sale is either immediately to put up the lot again for sale, or after the other lots in the list have been disposed of, or he may postpone the sale to such future date as he shall then and there notify; and the defaulting purchaser is to be debarred from bidding for such lot or for any other lot, and he is not to be allowed to remain in the auction-room; and that the defaulting purchaser will be liable for any loss that may accrue to Government in case it becomes necessary to re-sell a lot at a lower rate either in consequence of his failure to deposit the sum payable at the time of sale, or to redeem his promissory note on or before 4 P.M. on the day following that on which the note was signed.

(*h*)—That the purchasers are to adhere to all the provisions of the Opium, Excise and Police laws, and of the rules which have been or may from time to time be prescribed by the Board of Revenue.

8. All sales subsequent to the date of the triennial sale in March are to be held subject to the conditions contained in this notification, so far as they may be applicable.

9. Any further information regarding the auction may be had on application at the Office of the Superintendent of Excise Revenue.

D. G. BONNERJEE,

Superintendent of Excise Revenue,
Calcutta, the Suburbs, Howrah, and Bally.

OFFICE OF THE SUPDT. OF EXCISE REVENUE; 4, BANKSHALL STREET, CALCUTTA, *the 15th January* 1890.

Notification.

IT is hereby notified that under section 46 of the Local Self-Government Act III (B.C.) of 1885, the District Board of Dacca have at their Special Meeting, held on the 11th January 1890, determined to levy the road cess in this district for the ensuing financial year 1890-91 at the maximum rate of one-half anna or six pies in the rupee on the annual value of lands.

L. HARE, Chairman.

Dacca District Board's Office, the 11th January 1890.

NOTICE is hereby given that Mary Stephen, who obtained a decree *nisi* on the 23rd January 1890 in the High Court for dissolution of marriage against her husband S. S. Stephen, has revoked and cancelled the power-of-attorney which she executed in his favour, and that the said S. S. Stephen has no authority to act as her attorney in any matter whatsoever. Any payment of money therefore to the said S. S. Stephen on account of the said Mary Stephen will not be recognised.

GOVESH CHUNDER CHUNDER, Attorney for Mary Stephen.

Calcutta, the 27th January 1890. (3494—3)

Stolen.

THE Government Promissory Note No. 160426, of the 4 per cent. of 1865, for Rs. 1,000, and the Government Promissory Note No. 205964, of the 4 per cent. of 1865, for Rs. 1,000, the former originally standing in the name of the Bank of Bengal, last endorsed to Soorendra Nath Mookerji, who in January 1889 endorsed to his wife Shrimoti Khiroda Debya, the proprietor, by whom it was never endorsed to any other person; the latter originally standing in the name of the Comptroller-General, last endorsed to Soorendra Nath Mookerji, who in January 1889 endorsed to his wife Shrimoti Khiroda Debya, by whom it was never endorsed to any other person. Payment of the above Notes, and the interest thereupon, have been stopped at the Public Debt Office, Bank of Bengal, and application is about to be made for the issue of duplicates in favour of the proprietor.

SOORENDRA NATH MOOKERJI, Resident of Benjhatty under Serampore, zillah Hooghly, at present residing at Dholy *vid* Dholy P. O., zillah Mozufferpore.

(3495—3)

Oudh Forest Department.

BAHRAMGHAT DEPOT.

ON THE OUDH AND ROHILKHAND RAILWAY.

FROM this date the prices of sál beams and scantlings supplied from this depôt will be as follows:—

BEAMS.—21 feet length, at Rs. 2-10 per cubic foot.
22 „ „ 2-12 „
23 „ „ 2-14 „
24 „ „ 3 „

Above the length given two annas per foot run will be charged. Any inches over the foot will be charged as a foot.

SCANTLINGS—From 12 to 20 feet, at Rs. 2-8 per c. ft.
Under 12 and over 7 „ 2-4 „
Under 7 feet „ 2 „

The above prices are for ordinary building purposes For *Planking Sleepers*, &c., special rates will be fixed by agreement.

The Department will still take orders for buildings all over at Rs. 2-4 per cubic foot, provided the scantlings are taken in fair proportion.

Second and Third Class Timber will be sold and price fixed by agreement.

Auction Sales will be held from time to time to clear off stock.

For further particulars apply to the Officer in charge.

By order of the Conservator of Forests, N. W. P. and Oudh, Oudh Circle.

KANHYA LAL,
Sub-Assistant Conservator of Forests,
Bahramghat Division.

Bahramghat, the 1st April 1886.

Government Cinchona Febrifuge.

THIS preparation is an efficient substitute for Quinine and can be purchased by Government officers for public and charitable purposes, and by any one taking *twenty pounds* at a time from the Superintendent, Botanic Garden, Calcutta, *for cash only*, at the following rates:—per four ounce tin, *Rs.* 3-14; per eight ounce tin, *Rs.* 7-4; per pound tin, *Rs.* 14. The general public can be supplied by the Superintendent, Botanic Garden, *for cash only*, at the undernoted rates:—per four ounce tin, *Rs.* 4-14; per eight ounce tin, *Rs.* 9-4; per pound tin, Rs. 17-8. This medicine is also sold by the principal European and Native druggists in Calcutta. Postage four annas per 4 oz. tin, eight annas per 8 oz. tin, and twelve annas per pound tin in addition to the foregoing rates.

Road Cess Notification.

DISTRICT PUBNA.

IT is hereby notified that under section 38 of the Cess Act, as amended by the second schedule of the Local Self-Government Act III (B.C.) of 1885, the District Board of Pubna have determined that road cess in that district for the cess year 1890-91 shall be levied at the maximum rate, viz., one-half anna on each rupee of the annual value of lands, and of the annual net profits from mines, quarries, tramways, railways and other immoveable property as enumerated in section 6 of the Cess Act.

W. FIDDIAN, Chairman.

LETTERS of Administration (with copy Will and Codicil annexed) of the property and credits of Edward John Morgan, formerly of Oak Cottage, Parkestone, near Poole, in the County of Dorset, but late of Forefield House, in the City of Bath, in the County of Somerset in England, Esquire, deceased, have been granted by the High Court, Calcutta, to G. W. F. Buckland, Esq., of No. 1, Esplanade West, Calcutta, as the Attorney of the executors named in the Will of the deceased. All persons having claim against the deceased are requested to submit same to the Administrator before the 15th day of February next, after which date no claims will be admitted.

J. A. APCAR, Attorney.

Calcutta, 30th November 1889. (3330—3)

JOGENDRA NATH SEN, M. A., B. L., intends to apply for enrolment as a Vakil of the High Court.

(3444—4)

TARA PRASANNA GUHA, B.L., intends to apply for enrolment as a Vakeel of the High Court.

(3496—4)

Destroyed.

THE Government Promissory Note No. 029771 of the 4 per cent. loan of 1879 for Rs. 500, standing in the name of Baboo Sarbessur Mitra, the proprietor, by whom it was never endorsed to any other person. Payment of the above note and the interest thereupon have been stopped at the Public Debt Office, Bank of Bengal, and application is to be made for accrued interest and for the issue of duplicates in favour of the proprietor after twoyears from date of last advertisement.

(2520—3) SARBESSUR MITRA, Asansol.

PROCEEDINGS of the Eighth General Meeting of Shareholders in the Bengal Silk Company, "Limited," held at the Registered Office of the Company, No. 25, Mangoe Lane, Calcutta, on 29th January 1890, at noon.

PRESENT:

D. Yule, Esq.
Dr. C. H. Joubert.
J. W. Stocks, Esq.
G. C. Hodgson, Esq.
J. A. Anderson, Esq.
E. J. Marshall, Esq.
R. A. Lyall, Esq.
E. L. McAlester, Esq., by his Attorney, R. A. Lyall, Esq.
C. J. Lyall, Esq., C.S., C.I.E. by his Attorney, R. A. Lyall, Esq.
A. A. Stokes, Esq., by his Attorney, R. A. Lyall, Esq.
A. Yule, Esq., by his Attorney, D. Yule, Esq.
G. Yule, Esq., by his Attorney, D. Yule, Esq.

Proposed by Mr. J. W. Stocks,
Seconded by Mr. G. C. Hodgson—

1*st*.—That Mr. D. Yule take the Chair.

Proposed by Mr. D. Yule,
Seconded by Mr. J. A. Anderson—

2*nd*.—That the Managing Agents' Report having been taken as read be adopted, and that the accounts be passed as correct.

Carried unanimously.

Proposed by Mr. G. C. Hodgson,
Seconded by Dr. C. H. Joubert—

3*rd*.—That a Dividend of 4 per cent. on the Capital of the Company be declared payable immediately after this meeting to every Shareholder whose name stood on the Books of the Company on 16th instant, and that the sum of Rs. 11,726-10-5 be carried forward to next account subject to the deduction of the Managing Agents' and Manager's commissions as detailed in the Report.

Carried unanimously.

Proposed by Mr. J. W. Stocks,
Seconded by Mr. J. A. Anderson—

4*th*.—That Messrs. Lovelock and Lewes be elected Auditors of the Company on the same remuneration as before.

Carried unanimously.

Proposed by Dr. C. H. Joubert,
Seconded by Mr. J. A. Anderson—

5*th*.—That in the opinion of the Shareholders a vote of thanks is due to the Managing Agents and Manager for the skill with which they have brought the affairs of the Company through a series of disastrous years and placed them on the present satisfactory footing.

Carried unanimously.

The Meeting closed with a vote of thanks to the Chair.

D. YULE, Chairman.

LYALL, MARSHALL & Co., Managing Agents.
Calcutta, 29th January 1890. (3502—1)

INSOLVENT NOTICES.

In the Court for the Relief of Insolvent Debtors at Calcutta.

In the matter of THOMAS RICHARDSON FRENCH, an insolvent.

Notice that an application for an *ad interim* protection order has been this day made by the said insolvent, and that such application will be heard and disposed of by the Acting Commissioner of the Insolvent Court on Monday, the 10th day of February instant, at the hour of half past ten o'clock in the forenoon.

☞ "Any creditor of the said insolvent desirous of opposing such application must appear before the said Court at the time and place aforesaid.

C. G. Lewis, Attorney. (3503—1)

In the matter of BHUGWANJEE CURSONJEE, an insolvent.

On Thursday, the 2nd day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday, the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

Insolvent in person. (3504—2)

In the matter of SOOBENDRO NATH SEN, an insolvent.

On Thursday, the 2nd day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday, the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

E. J. Fink, Attorney. (3505—2)

In the matter of GOPEE KANTO SEN, an insolvent.

On Friday, the 10th day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday, the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

M. M. Chatterjee, Attorney. (3506—2)

In the matter of LEONTIUS BRIDGNELL NYSS, an insolvent.

On Monday, the 6th day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday, the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

Insolvent in person. (3507—2)

In the matter of LEOZANDER and RAOUL QUILLET, insolvents.

On Saturday, the 11th day of January last, it was ordered that the matters of the petition of the said insolvents be heard on Saturday, the 1st day of March next, and that the said insolvents do then attend to be examined before the said Court.

Dignam, Robinson and Sparkes, Attorneys. (3508-2.)

In the matter of THOMAS RICHARDSON FRENCH, an insolvent.

On Wednesday, the 29th day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

C. G. Lewis, Attorney. (3509—2)

In the matter of THOMAS RICHARDSON FRENCH, of No. 7, Sudder Street, in the Town of Calcutta, teacher of music, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Wednesday, the 29th day of January last, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

C. G. Lewis, Attorney. (3510—1)

In the matter of GOPEE KANTO SEN, of No. 20, Durponarain Thakoor's Street, in the Town of Calcutta, formerly carrying on business as merchant in co-partnership with Romakanto Sen and Kisto Mohun Mullick, under the name and style of Hurry Dass Dutt & Co., and afterwards carrying on business as merchant and commission agent at No. 25, Swallow Lane in Calcutta aforesaid, under the name, style and firm of Gopeekanto Sen and Company, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Friday, the 10th day of January last, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

M. M. Chatterjee, Attorney. (3511—1

In the matter of LEONTIUS BRIDGNELL NYSS, of No. 4 Beparee Tollah Lane, in the Town of Calcutta, a day extra reader in the Government Central Press, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Monday, the 6th day of January last, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Insolvent in person. (3512—1

In the matter of SOOBENDRO NATH SEN, of No. 16, Modo Roy's Lane, in the Town of Calcutta, lately an assistant in the Cash Department of Messrs Mackinnon, Mackenzie and Company of Calcutta merchants, but now out of employ, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Thursday, the 2nd day of January last, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

E. J. Fink, Attorney. (3513—1

In the matter of BHUGOWANJEE CURSONJEE, of No. 10 Kurbulla Lane, in the Town of Calcutta, late trader in rice to Allepee and Malabar coast, since then in the service of Mahomed Omer, and now in the employ of Solomon Perta, an insolvent.]

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Thursday, the 2nd day of January last, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Insolvent in person. (3514—1

In the matter of Gosto Behary Seal, an insolvent.

Notice that an application for an *ad interim* protection order has been this day made by the said insolvent, and that such application will be heard and disposed of by the Acting Commissioner of the Insolvent Court on Monday, the 10th day of February instant, at the hour of half past 10 o'clock in the forenoon.

☞ "Any creditor of the said insolvent desirous of opposing such application must appear before the said Court at the time and place aforesaid."

N. C. Bose, Attorney. (3515—1)

Chief Clerk's Office, the 4th February 1890.

Insolvency Notice.

NOTICE is hereby given that the undermentioned dividend is lying unclaimed :—

Estate SREERAM CHUNDER CHATTERJEE, *an insolvent.*

No.	NAME OF CREDITOR.	Amount of claim.	1st Dividend at Rs. 50 per cent.
5	Abinash Chunder Shaha	Rs. A. P. 120 0 0	Rs. A. P. 60 0 0

Estate ALBERT SMALLWOOD (*separate estate*), *an insolvent.*

			1st Dividend at Rs. 1-13-6 per cent.
54	F. S. Fairhead	Rs. A. P. 2,45 14 3	Rs. A. P. 133 9 6

(3501—1) A. B. MILLER, Official Assignee.

POSTAL NOTICES.

Unclaimed Letters held in the Calcutta General Post Office on 4th February 1890.

Ainslie, J. H.
Albrechs, A.
Balthazar, C.
Brocas, Mrs.
Butler, Darley & Co.
Butterfass, G.
Caroll, W. F.
Cohen, A. M.
Currie, R. S.
Schiebler, C.
Glyn, C.
Groner, R.
Gutch, George.
McNutty, J. H.
Watson, W.

Letters marked Care of "Post Office."

Backhouse, W. A.
Baragerey, L.
Barker, F. W.
Bather, H. R.
Baxter, Mrs.
Bear, W.
Bradshaw, W.
Brearey, James.
Belitski, R.
Berkeley, C. M.
Boland, J.
Brown, W.
Carbery, Lady.
Chatterton, J.
Church, E. M.
Close, H.
Comar, Mrs. A.
Cooper, W.
Courage, R.
Courtney, T. S.
Davis, Mrs. G.
Dovitro, D. F. D.
Dickson, Mrs. E.
Douglas, G. P. H.
Drakeford, A.
Duclere, G. P.
Dunlo, Viscount.
Dymond, G. F.
Elliott, K.
Filleul Revd., S. E. V.
Fisk, F. M.
Flack, F. F.
Flaherty, O. H.
Fletcher, Neil.
Forshaw, H.
Fraiser, H. C.
Fraiser, Miss F.
Francis, A. M.
Gallwey, C. H.
Gellett, Cecil S.
Glover, W. E.
Godwin, George.
Green, W. W.
Hamilton, C. J.
Hamilton, J. R.
Handcock, J. G.
Hardman, G. D.
Hunter, H. C.
Hardy, Mrs. M.
Harper, A.
Hawksworth, Mrs.
Henderson, W. H.
Hewett, F. J.
Hilton, R. W.
Horus, Miss M. L.
Jackson, T.
Johannessen, O. C.
Keane, J. J.
Kennard, F.
Kleine, Henri.
Krieger, G.
Lach, R.
Lamb, E. G.
Langer, J. O.
Lindeman, L. K.
Linton, C. E.
Livesey, Thomas.
Livewright, R.
Lloyd, Willis.
Long, W.
Major, A.
Mallite, J. W.
Malthy, S. W.
Manual, A. M.
Matthews, J. R.
Mathewson, F.
Maxwell, Sir, J. S.
May, J. J.
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Sano, T.
Sessions, F.
Sevestre, J.
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Shrewsbury, Miss.
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Sisam, Rev. W. B.
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Smith, M. O.
Soares, F. H.
Sweet, L.
Taylor, C.
Thomas, G. T.
Thomson, Captain W. A.
Thompson and Co.
Thompson, G.
Uphill, T.
Ursite, Johan.
Waddell, Alex.
Walter, F.
Walter, Amherst.
Webster, Mrs.
White, H. J.
Williams, J.
Wilson, H. W.
Worker, E. H.

Registered Letters.

Edwards, C.
Guiseppe, Celestini.
James, L. E.
MacLeod, D. J.
Marsland, W.
Menzies, C.
Smith, M. Oswald.
Zucker, Moses.

Unclaimed Letters held in the Barrackpore Post Office on the 3rd February 1890.

Baker, E.
Balfour, H. T.
Coulter, A.
Dubery, E.
Harvey, Sergeant.
Harding, H. R.
Haswell, Mrs.
Lindsay, W. C.
Lloyd, C.
Martin, Mr.
Mathuson, J.
Presgent, Mr.
Stevens, Mrs. C.
Thompson, Jas.

E. HUTTON,
Presidency Postmaster, Calcutta.

Mails for	Date of closing at Calcutta.	Route by which despatched.
	1890.	
Egypt, Europe, America, Cape Colonies through United Kingdom.	11th Feb. ...	Per P. & O. steamer from Bombay.
Ditto (book-post and pattern packets).	10th " ...	Ditto.
Mauritius, Mayotte, Nossi Be and Réunion.	11th " ...	Ditto.
Zanzibar, Mozambique, Delagoa Bay, Natal and Cape Colonies.	11th " ...	Ditto.
Ceylon, Straits Settlements, Netherlands India, Labuan, Bankok (Siam), Philippine Islands, China and Japan.	10th " ...	Ditto.
Australia, New Zealand, and Tasmania.	10th " ...	Ditto.
Madras and Colombo ...	5th " ...	Per P. & O. steamer *Rosetta.*
Straits, China and Japan ...	6th " ...	Per str. *Kutsang.*
Rangoon and Moulmein ...	7th " ...	Ditto *Sirsa.*
Ditto ditto ...	11th " ...	Ditto *Madura.*
Akyab, Kyaukpyu, Sandoway and Rangoon.	5th " ...	Ditto *Madras.*
Mauritius	11th " ...	Ditto *Wardha.*
Adelaide, Melbourne and Sydney.	8th " ...	Ditto *Clitus.*

N.B.—The letter-box for inland articles (including articles for Burma and Port Blair and for Ceylon by land route) will be cleared for the last time for articles without the late-fee at 7 P.M. precisely, after which hour inland letters and papers fully prepaid and bearing an extra postage stamp of half-anna will be received up to 7-30 P.M.

On the day of despatch of the Mail for Europe, the letter-box for foreign articles will be cleared for the last time for articles without the late-fee at 8-30 P.M., and late letters and papers will be received up to 9 P.M. On other days the letter-box for foreign articles will be cleared for the last time for articles without the late-fee at 7 P.M., and foreign letters and papers fully prepaid, bearing an extra stamp of four annas, will be received up to 7-30 P.M. for despatch by any Foreign Mails despatched the same night.

E. HUTTON, Presidency Postmaster.
General Post Office, the 4th February 1890.

Nuddea Rivers.

Report showing the least depths of water for the week ending Friday, the 31st January 1890.

Name of river.	Reach of river.	Least depth of water soundings.	Remarks.
		Ft. In.	
Bhagirathi.	Entrance from Ganges ...	1 0	At mouth entrance practically closed.
	Thence to Nurpur	1 6 0	Dhopipara.
	From Nurpur to Jungipur ...	1 0	Kanupore.
	" Jungipur to Berhampur	1 2	Patanpara.
	" Berhampur to Cutwa ...	1 0	Nogore.
	" Cutwa to Nuddea ...	2 3	Patooly.
Bhyrab-Jelinghi.	Entrance from Ganges ...	6 0	
	Thence to Akriganj	5 0	
	Akriganj to junction of the Bhyrub and Jelinghi ...	4 3	Chukyama.
	Thence to Patkabari	5 0	Amtola.
	Patkabari to Nuddea	3 9	Kalinagur.
Mathanga.	Entrance from Ganges ...	2 0	
	Thence to Chuypara ...	1 0	Sircarpara.
	From Chuypara to Shikarpur	0 6	Pragpore.
	" Shikarpur to Boalia ...	0 9	Shampore.
	" Boalia to Chuadanga ...	2 6	Sialmari.
	" Chuadanga to Kissengunj and Hanskhali...	2 6	Pirpore.

Gauge Readings.

	Locality.	Date.	Hour.	Height above zero.	Height above mean sea level.	REMARKS.
			A. M.	Feet.	Feet.	Below zero.
Ganges.	Sahebganj ...	1-2-90	6	1·00	67·00	
	Rampore Hoalia	1-2-90	12	0·96	42·96	
	Entrance of Bhagirati ...	1-2-90	7	2·30	47·61	
	Entrance of Bhyrub-Jelinghi ..	1-2-90	...	7·25	45·61	
	Entrance of Matabanga ...	1-2-90	...	2·64	.....	
Bhagirati...	Berhampur ...	3-2-90	12	2·42	36·21	
Jelinghi ...	Kishnaghur ...	31-1-90	...	3·79	12·68	
	Saroopgunge ...	1-2-90	6	2·92	7·22	
Matabanga	Hanskhali ...	31-1-90	...	2·50	13 35	

C. E. LIVESAY, C.E.,
Exe. Engr., Nuddea Rivers Division.

Berhampore, the 3rd February 1890.

AT the Meteorological Office, No. 5, Russell Street, the following official publications:—

Meteorological Report of		1867	...	Rs. 0 12	per copy.
Ditto	ditto	1868	...	„ 1 8	„
Ditto	ditto	1869	...	„ 2 4	„
Ditto	ditto	1870	...	„ 2 6	„
Ditto	ditto	1871	...	„ 2 8	„
Ditto	ditto	1872	...	„ 3 0	„
Ditto	ditto	1873	...	„ 3 0	„
Ditto	ditto	1874	...	„ 3 0	„
Administration Report of		1870-71	...	„ 0 4	„
Ditto	ditto	1871-72	...	„ 0 4	„
Ditto	ditto	1872-73	...	„ 0 4	„
Ditto	ditto	1873-74	...	„ 0 4	„
Ditto	ditto	1874-75	...	„ 0 4	„
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JOHN ELIOT, M.A., *Meteorological Reporter to the Govt. of Bengal.*

CALCUTTA, the 26th August 1875.

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ALEX. PEDLER,
Offg. Meteorological Reporter to the Govt. of Bengal.
Meteorological Office, Bengal, the 17th March 1886.

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H. A. D. PHILLIPS,
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The 24th November 1886.

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The 24th February 1886.

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PART VI.

Bills introduced into the Council of the Governor General for making Laws and Regulations, or published under Rule 22.

GOVERNMENT OF INDIA.

LEGISLATIVE DEPARTMENT.

The following Bill was introduced into the Council of the Governor General of India for the purpose of making Laws and Regulations on the 31st January, 1890:—

No. 3 OF 1890.

A Bill to Amend the Indian Factories Act, 1881.

WHEREAS it is expedient to amend the Indian Factories Act, 1881; It is hereby enacted as follows:— / of 1881.

Amendment of definition of "factory" in section 2, Act XV, 1881.

1. For the words "one hundred" in section 2 of the said Act the word "twenty" shall be substituted.

Amendment of sections 4, 5, 6 and 16, Act XV, 1881.

2. For the word "seven" in sections 4, 5, 6 and 16 of the said Act the word "nine" shall be substituted.

Addition to section 4, Act XV, 1881.

3. To section 4 of the said Act the following shall be added, namely:—

"or for more than the time allowed by this Act for the employment of women."

Amendment of section 7, Act XV, 1881.

4. (1) For the first clause of section 7 of the said Act the following shall be substituted, namely:—

"No woman shall be actually employed more than eleven hours, nor any child more than nine hours, in any factory in any one day."

(2) In the second clause of the same section, before the word "child" the words "woman or", and between the words "allowed to" and the word "him" the words "her or" shall be inserted.

(3) In the last clause of the same section, for the words "A child shall not be deemed to be employed" the words "A woman or child shall not be deemed to be actually employed" shall be substituted.

Substitution of new section for section 8, Act XV, 1881.

5. For section 8 of the said Act the following shall be substituted, namely:—

Allowance of holidays to women and children.

"8. Every occupier of a factory in which women or children are employed shall, before the beginning of each month, fix, according to the castes or classes to which such women or children belong or otherwise, not less than four days in such month to be observed as holidays by each woman or child employed in the factory, and shall forthwith give notice of the days so fixed to such officer as the Local Government may, from time to time, appoint in this behalf.

"An occupier of a factory may, with the previous sanction of the Inspector, substitute, for any day fixed under this section, another day in the same month.

"A woman or child shall not be employed in such factory on a day fixed under this section as a day to be observed as a holiday by the woman or child, unless when another day has been substituted for such day as hereinbefore provided, in which event the woman or child shall not be employed in such factory on the day so substituted."

Amendment of section 9, Act XV, 1881.

6. In section 9 of the said Act, before the word "child" the words "woman or" shall be inserted.

Amendment of section 15, Act XV, 1881.

7. (1) In clause (*a*) of, and the second proviso to, section 15 of the said Act, between the words "any" and "each" respectively and the word "child" the words "woman or", and in the same proviso between the words "two or more" and the word "children" the words "women or", shall be inserted.

(2) For clauses (*e*) and (*f*) of the same section the following shall be substituted, namely:—

"(*e*) neglects to fence any machinery or mill-gearing in any factory;

(*f*) neglects to maintain a supply of water for the use of persons employed in any factory;

(*g*) neglects to ventilate any factory or to keep any factory in a cleanly state and free from effluvia arising from any drain, privy or other nuisance;

(*h*) suffers any factory to be so overcrowded, while work is carried on therein, as to be injurious to the health of the persons employed therein; or

(*i*) neglects to give any notice or furnish any return,".

Amendment of section 18, Act XV, 1881.

8. (1) For clauses (*b*), (*c*) and (*d*) of section 18 of the said Act the following shall be substituted, namely:—

"(*b*) the water-supply to be maintained for the use of persons employed in factories;

[1 Vict., c. 3, s. 61 (1).] (*c*) the ventilation of factories and their cleanliness (including lime-washing, painting, varnishing and washing) and freedom from effluvia arising from any drain, privy or other nuisance;

(*d*) the prevention of such overcrowding of factories, while work is carried on therein, as is likely to be injurious to the health of the persons employed therein;

(*e*) the obligation of occupiers of factories to furnish true returns, occasional or periodical, on and in accordance with the requisition of the local Inspector or the Local Government;

(*f*) the inspection of factories;

(*g*) the manner in which appeals under this Act are to be presented and heard; and

(*h*) otherwise carrying out the purposes of this Act."

(2) To the same section the following shall be added, namely:—

"Before making rules under clause (*b*), clause (*c*) or clause (*d*) of this section, the Local Government shall publish in such manner as may in its opinion be sufficient for giving information to persons interested a draft of the proposed rules, with a notice specifying a date at or after which the draft will be taken into consideration, and shall consider any objection or suggestion which may be received from any person with respect to the draft before the date so specified."

References to Act XV of 1881 to be read as references to that Act as amended by this Act.

9. A reference in any enactment or document to the Indian Factories Act, 1881, shall be read as a reference to that Act as amended by this Act.

[Cf. Ir Act X 1887, s Bom. 1888, (2): an Act IV ss. 10 (iii) a (1).]

IV of 1

STATEMENT OF OBJECTS AND REASONS.

THE Government of India, having recently had under its consideration the reports of Local Governments on the operation of the Indian Factories Act, 1881, and the proceedings of the Commission appointed in 1884 to consider the working of factories in the Bombay Presidency, is of opinion that the Act of 1881 should be so amended as to—

(*a*) bring within its scope any factory in which not fewer than twenty hands are employed,

(*b*) raise from seven to nine years the age below which a child may not be employed in a factory,

(*c*) limit the hours of work for women to eleven in any one day,

(*d*) extend to women the provisions of the Act with respect to the allowance of holidays to children, and enable occupiers of factories to fix such days as holidays for the women and children employed therein as, having regard to the different classes or castes to which they belong, may be most convenient for them,

(*e*) authorise Local Governments to make sanitary rules suited to local requirements, and

(*f*) render it obligatory on occupiers of factories to furnish such statistics as may from time to time be required by the Government.

The object of the Bill is to amend the Act accordingly.

Among the enactments which will be incidentally affected by the Bill (section 9) are the Electricity Act, 1887, the City of Bombay Municipal Act, 1888, and the Indian Merchandise Marks Act, 1889.

A reprint of Act XV of 1881, with the proposed amendments set forth in italics, is appended to this Statement.

The 31st January, 1890. ANDREW R. SCOBLE.

APPENDIX.

ACT No. XV OF 1881.

(As amended by the Bill.)

An Act to regulate labour in Factories.

Preamble. WHEREAS it is expedient to regulate labour in factories: It is hereby enacted as follows:—

Preliminary.

Short title. 1. This Act may be called the Indian Factories Act, 1881.

Local extent. Commencement. It applies to the whole of British India, and shall come into force on the first day of July, 1881.

Interpretation-clause. 2. In this Act, unless there is something repugnant in the subject or context,—

"factory" means any premises (other than indigo-factories or premises situated on, and used solely for the purposes of, a tea or coffee plantation) wherein is carried on, for not less than four months in the whole in any one year, any process for, or incidental to, making, altering, repairing, ornamenting, finishing or otherwise adapting for use, transport or sale, any article or part of an article; and "factory:"

(*a*) wherein steam, water or other mechanical power is used in aid of any such process; and

(*b*) wherein not less than *twenty* persons are on any day simultaneously employed in any manual labour in, or incidental to, any such process; and

every part of a factory shall be deemed to be a factory, except any part used exclusively as a dwelling:

"child" means a person under the age of twelve years: "child:"

"mill-gearing" includes every shaft, whether upright, oblique or horizontal, and every wheel, drum, pulley, rope, driving strap or band, by which the motion of the first moving power is communicated to any machine: "mill-gearing:"

a child who works in a factory, whether for wages or not, either in a manufacturing process or handicraft, or in cleaning any part of the factory used for any manufacturing process or handicraft, or in cleaning or oiling any part of the machinery, or in any other kind of work whatsoever incidental to, or connected with, the manufacturing process or handicraft, or connected with the article made or otherwise the subject of the manufacturing process or handicraft therein, shall be deemed to be employed therein within the meaning of this Act. "employed."

Inspectors and certifying Surgeons.

Inspectors. 3. The Local Government may in its discretion, by notification in the official Gazette, appoint such persons as it thinks fit to be Inspectors of factories within such local limits as it may assign to such Inspectors, and may suspend or dismiss any person so appointed.

In default of such appointment, the Magistrate of the district shall, in virtue of his office, be Inspector of all factories (if any) in the district.

Such Inspectors shall be deemed public servants within the meaning of the Indian Penal Code; and shall be officially subordinate to such authority as the Local Government may, from time to time, indicate in this behalf.

Powers of Inspector. 4. An Inspector of factories may, within the local limits for which he is appointed,—

(*a*) enter, with such assistants (if any) as he thinks fit, any factory whenever he has reason to believe that any person is employed therein;

(*b*) make such examination of the premises and machinery, and of the registers hereinafter prescribed, and take on the spot or otherwise such evidence of any person, as such Inspector may deem necessary for carrying out the provisions of this Act;

(*c*) order that any person shall not be employed in a factory when he has reason to believe that such employment would be in contravention of this Act—

until the age of such person has been certified, in the manner hereinafter provided, to be above *nine* years; or,

for more than the time allowed by this Act for the employment of children until his age has been so certified to be above twelve years; *or*

for more than the time allowed by this Act for the employment of women.

Certifying surgeons.

5. The civil surgeon or such other person practising medicine or surgery as the Local Government may, from time to time, appoint in this behalf for any local area (hereinafter called the certifying surgeon) shall, at the request of any person employed or desirous of being employed in a factory situate in such local area, or of the parent or guardian of such person, examine such person and grant him a certificate, stating whether his age, as nearly as it can be ascertained from such examination, is above or below *nine* years, or twelve years, as the case may be.

Women and Children.

Age *for* employment *of children.*

6. No child shall be employed in any factory if he is under the age of *nine* years.

Hours of employment for *women and* children.

7. No *woman* shall be actually employed *more than eleven hours, nor any child more than nine hours, in any factory* in any one day.

And no *woman or* child shall be employed in any factory on any day without an interval, or intervals, amounting in the whole to at least an hour, being allowed to *her or* him for food and rest.

The times at which such intervals shall be allowed, and the length of each interval, shall be fixed by the Local Government for each factory, after ascertaining, as far as possible, the existing practice in such factory and the wishes of the occupier thereof.

The occupier shall set up and maintain, in some conspicuous place in the factory, a printed or written notice, in English and the languages of the district in which the factory is situate, showing the times at which such intervals shall be allowed and the length of each interval.

A *woman or* child shall not be deemed to be *actually* employed within the meaning of the first clause of this section during any interval allowed for food or rest.

Allowance of holidays to women and children.

8. *Every occupier of a factory in which women or children are employed shall, before the beginning of each month, fix, according to the castes or classes to which such women or children belong or otherwise, not less than four days in such month to be observed as holidays by each woman or child employed in the factory, and shall forthwith give notice of the days so fixed to such officer as the Local Government may, from time to time, appoint in this behalf.*

An occupier of a factory may, with the previous sanction of the Inspector, substitute, for any day fixed under this section, another day in the same month.

A woman or child shall not be employed in such factory on a day fixed under this section as a day to be observed as a holiday by the woman or child, unless when another day has been substituted for such day as hereinbefore provided, in which event the woman or child shall not be employed in such factory on the day so substituted.

Prohibition of employment of woman or child in two factories on same day.

9. No occupier of a factory shall employ therein on any day any *woman or* child who has to his knowledge already been employed on the same day in any other factory.

Prohibition of employment of child in certain dangerous work.

10. No occupier of a factory shall allow any child to clean any part of the mill-gearing or machinery of such factory while the same is in motion, or to work between the fixed and traversing parts of any self-acting machine while such machine is in motion by the action of the steam-engine, water-wheel or other mechanical power, as the case may be.

Register of children in a factory.

11. The Local Government may direct any occupier of a factory to keep, in such form and with such particulars as such Government may, from time to time, prescribe, registers of the children (if any) employed in such factory, and of their respective employments.

Fencing.

Fencing.

12. (*a*) Every fly-wheel directly connected with a steam-engine, or water-wheel or other mechanical power in any part of a factory, and every part of a steam-engine or water-wheel,

(*b*) every hoist or teagle near which any person is liable to pass or be employed, and

(*c*) every other part of the machinery or mill-gearing of a factory which may, in the opinion of the local Inspector, be dangerous if left unfenced, and which he may have ordered to be fenced,

shall, while the same is in motion, be kept by the occupier of such factory securely fenced.

Any order under clause (*c*) may be set aside, on appeal or otherwise, by the Local Government or such authority as it may appoint in this behalf.

Notices.

Notice to be given of accidents.

13. When any accident occurs in a factory causing death or bodily injury whereby the person injured is prevented from returning to his work in the factory during forty-eight hours after the occurrence of the accident, the occupier of such factory, or, in his absence, his principal agent in the management of such factory, shall send such notice of such accident to such authorities in such form and within such time as the Local Government may, from time to time, by rule, direct.

Person beginning to occupy factory to give notice.

14. Every person shall, within one month after he begins to occupy a factory, send to the local Inspector a written notice containing the name of the factory, the place where it is situate, the address to which he desires his letters to be addressed, the nature of the work performed in such factory, the nature and amount of the moving power therein, and the name of the person (if any) under whom the business of the factory is to be carried on.

Penalties.

Penalties.

15. Any person who, in breach of this Act, or of any order or rule made hereunder,—

(*a*) employs any *woman or* child in any factory;

(*b*) neglects to set up or maintain the notice required by section seven, or to fix the days referred to in section eight;

(*c*) allows any child to perform the work forbidden by, or to work in contravention of, section ten;

(*d*) neglects to keep a register in manner prescribed under section eleven;

(*e*) neglects to fence any machinery or mill-gearing in any factory;

(*f*) *neglects to maintain a supply of water for the use of persons employed in any factory;*

(*g*) *neglects to ventilate any factory or to keep any factory in a cleanly state and free from effluvia arising from any drain, privy or other nuisance;*

(*h*) *suffers any factory to be so overcrowded, while work is carried on therein, as to be injurious to the health of the persons employed therein; or*

(*i*) *neglects to give any notice or furnish any return,*

shall be punished with fine which may extend to two hundred rupees:

Provided that—

1st, no prosecution under this section shall be instituted except by, or with the previous sanction of, the local Inspector; and

Only one penalty for same kind of offence on one day.

2nd, no person shall be liable under this section to more than one penalty for any one description of offence committed on the same day, except where two or more *women or* children are employed contrary to the provisions of this Act, in which case one penalty may be imposed in respect of each *woman or* child so employed.

Burden of proof as to age.

16. Where an act or omission would, if a person were under *nine* or twelve years of age, be an offence punishable under this Act, and such person is, in the opinion of the Court, apparently under such age, it shall lie on the accused to prove that such person is not under such age.

Certifying surgeon's declaration in writing.

A declaration in writing by a certifying surgeon that he has personally examined a person employed in a factory, and believes him to be under or over the age set forth in such declaration, shall, for the purposes of this Act, be admissible as evidence of the age of that person.

Occupier primarily liable for breaches of Act.

17. Every occupier of a factory shall be deemed primarily liable for any breach therein of the provisions of this Act; but he may discharge himself from such liability by proof to the satisfaction of the local Inspector, before prosecution therefor, that such breach was committed by some other person without his knowledge or consent; and the person committing such breach shall be liable therefor.

Miscellaneous.

Power to make rules.

18. The Local Government may, from time to time, make rules consistent with this Act, to provide for—

(*a*) the fencing of machinery and mill-gearing in factories;

(*b the water-supply to be maintained for the use of persons employed in factories;*

(*c*) *the ventilation of factories and their cleanliness (including lime-washing, painting, varnishing and washing) and freedom from effluvia arising from any drain, privy or other nuisance;*

(*d*) *the prevention of such overcrowding of factories, while work is carried on therein, as is likely to be injurious to the health of the persons employed therein;*

(*e*) *the obligation of occupiers of factories to furnish true returns, occasional or periodical, on and in accordance with the requisition of the local Inspector or the Local Government;*

(*f*) *the inspection of factories;*

(*g*) *the manner in which appeals under this Act are to be presented and heard; and*

(*h*) *otherwise carrying out the purposes of this Act.*

Such rules shall be published in the official Gazette, and shall thereupon have the force of law.

Before making rules under clause (b), clause (c) or clause (d) of this section, the Local Government shall publish in such manner as may in its opinion be sufficient for giving information to persons interested a draft of the proposed rules, with a notice specifying a date at or after which the draft will be taken into consideration, and shall consider any objection or suggestion which may be received from any person with respect to the draft before the date so specified.

Crown factories.

19. This Act shall apply to factories belonging to the Crown: provided that, in case of any public emergency, the Governor General in Council or the Local Government may, by an order in writing, exempt any such factory from this Act to such extent and during such period as the Governor General in Council or the Local Government, as the case may be, thinks fit.

S. HARVEY JAMES,
Secretary to the Government of India.

[REGISTERED No. 29.]

No. 6 of 1890.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 5, 1890.

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PART I.

Orders and Notifications by the Lieutenant-Governor of Bengal, the High Court, Government Treasury, &c.

ORDERS BY THE LIEUT.-GOVERNOR OF BENGAL.

No. 161A.

GENERAL.—*The 24th January* 1890.—Baboo Bhoirub Nath Palit, Deputy Collector is appointed to perform the functions of a Collector under the Public Demands Recovrey Act VII (B.C.) of 1880 in the district of Julpigoree.

The 29th January 1890.—Mr. M. Finucane, Director of Land Records, Bengal, acted in the first grade of Magistrates and Collectors from the 14th to the 19th instant, both days inclusive.

Mr. W. Fiddian, Magistrate and Collector, Pubna, acted in the first grade of Magistrates and Collectors from the 14th to the 19th instant, both days inclusive.

Mr. B. Dé, Officiating Magistrate and Collector, Khoolna, acted in the second grade of Magistrates and Collectors from the 14th to the 19th instant, both days inclusive, *vice* Mr. W. Fiddian.

The 31st January 1890.—Mr. J. B. Worgan, District and Sessions Judge, Cuttack, is allowed leave for fifteen days, under article 308 of the Civil Service Regulations, with effect from the date on which he availed himself of it.

Baboo Hurry Mohun Sen, Deputy Magistrate and Deputy Collector, Dacca, is allowed leave for six months, under article 369 of the Civil Service Regulations, in extension of the leave granted to him under the order of the 23rd September 1889.

The 3rd February 1890.—Baboo Gossain Das Hazra, Sub-Deputy Collector, Barh, Patna, is allowed leave for three months, under article 291 of the Civil Service Regulations, with effect from the date on which he may be relieved.

Moulvie Fazlar Rahman, Sub-Deputy Collector, Alipore, Julpigoree, is transferred to Patna, and is posted to the Barh sub-division of that district.

In modification of previous notifications, Mr. R. C. Sterndale is hereby appointed substantively *pro tempore* Cantonment Magistrate of Dum-Dum, and to have charge as Sub-divisional Officer of the villages outside Cantonment limits which constitute the Dum-Dum sub-division.

Mr. C. H. Vowell, C.S., reported his departure from India on furlough on the 19th January 1890.

The 4th February 1890.—Captain W. H. Chase, Northern Bengal Volunteer Rifle Corps, is allowed leave of absence for eight months, with effect from the 1st instant.

Mr. F. J. Monahan, Officiating Joint-Magistrate and Deputy Collector, Serajgunge, Pubna, is vested with the powers of a Collector under Act X of 1870 in that district.

POLICE.—*The 3rd February* 1890.—In modification of the order of the 28th January 1890, first class Inspector E. Robertson, of the Calcutta Police, is appointed to act for Mr. J. E. Millard, Superintendent of the Detective Department, but will remain in charge of the First Division, Town Police, during the absence of Mr. J. Costello, on leave, or until further orders.

Mr. J. E. Millard, Superintendent of the Detective Department, Calcutta Police, in charge of the Third Division, Town Police, is appointed to act for Mr. James Costello, Superintendent of the First Division, Town Police, during his absence on privilege leave. Mr. Millard will, however, continue to hold charge of the Third Division, Town Police.

The 4th February 1890.—Mr. W. H. Cornish, District Superintendent of Police, Maldah, is allowed leave for two days, under article 291 of the Civil Service Regulations, in extension of the leave granted to him under the order of the 17th December last.

Mr. W. A. Gayer, Officiating Assistant Superintendent of Police, Moorshedabad, is transferred to Backergunge.

REGISTRATION.—*The 31st January* 1890.—Moulvi Gowhar Ally, Deputy Magistrate and Deputy Collector, Maldah, is appointed to be also Sudder Sub-Registrar of Maldah, with retrospective effect from the 22nd May last, *vice* Moulvi Zakir Hossein, transferred.

EDUCATION.—*The 4th February* 1890.—Baboo Madhu Sudan Das, Law Lecturer, Ravenshaw College, Cuttack, is allowed leave for six weeks, without allowances, with effect from the 24th ultimo.

Baboo Jogneswar Chandra is appointed to act as Law Lecturer, Ravenshaw College, Cuttack, during the absence, on leave, of Baboo Madhu Sudan Das, or until further orders.

The following notifications are republished from the *Assam Gazette* :—

No. 434*G.*—*The 23rd January* 1890.—Mr. E. Muspratt is appointed to act as Commandant of the Naga Hills Military Police Battalion during the absence, on medical leave, of Lieutenant D. C. F. Macintyre, with effect from the 1st May 1889.

No. 435*G.*—Mr. J. Kennedy, C.S., Deputy Commissioner of Sylhet, was employed on special duty at Shillong from the 1st to the 5th September 1889, both days inclusive.

This reduces the amount of privilege leave granted to Mr. Kennedy in General Department notification No. 239, dated the 12th July 1889, by five days.

No. 1.—*The 23rd January* 1890.—Baboo Nritya Gopal Chatterji, B.L., Extra Assistant Commissioner, made over the executive charge of the Cachar Treasury to Mr. H. Le Mesurier, C.S., on the 31st December 1889.

No. 2.—Mr. L. St. J. Brodrick, Assistant Superintendent of Police, made over the executive charge of the Naga Hills Treasury to Surgeon W. W. White, M.D., on the 31st December 1889.

No. 4.—Mr. R. R. Pope, C.S., reported his return to duty from furlough in the forenoon of the 7th January 1890.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

REVENUE DEPARTMENT—(OPIUM).

NOTIFICATION.

The 4th February, 1890.—In consequence of the retirement of Mr. G. Field, Sub-Deputy Opium Agent, second grade, the following promotions are made, with effect from the 28th September, 1889:—

Mr. H. F. Campbell, Sub-Deputy Opium Agent, third grade, to be a Sub-Deputy Opium Agent of the second grade.

Mr. H. J. Lloyd, Sub-Deputy Opium Agent, fourth grade, to be a Sub-Deputy Opium Agent of the third grade.

Mr. P. J. Luard, Sub-Deputy Opium Agent, fifth grade, to be a Sub-Deputy Opium Agent of the fourth grade.

Mr. J. Christian, Assistant Sub-Deputy Opium Agent, first grade, to be a Sub-Deputy Opium Agent of the fifth grade.

Mr. W. T. Ryves, Assistant Sub-Deputy Opium Agent, second grade, to be an Assistant Sub-Deputy Opium Agent of the first grade.

Mr. C. S. Delmerick, Assistant Sub-Deputy Opium Agent, third grade, *sub. pro tem.* in the second grade, to be confirmed in that grade.

Mr. G. W. Dick-Lauder, Assistant Sub-Deputy Opium Agent, third grade, to be an Assistant Sub-Deputy Opium Agent, second grade, *sub. pro tem.*

Mr. C. H. S. Burt, Assistant Sub-Deputy Opium Agent, Probationary grade, *sub. pro tem.* in the third grade of Assistant Sub-Deputy Opium Agents, to be confirmed in that grade.

Mr. O. O'Donnell, Assistant Sub-Deputy Opium Agent, probationary grade, to be an Assistant Sub-Deputy Opium Agent, third grade, *sub. pro tem.*

Mr. E. C. Godfrey, Assistant Sub-Deputy Opium Agent, probationary grade, *sub. pro tem.*, to be confirmed in that grade.

Mr. G. W. Oliphant, Officiating Assistant Sub-Deputy Opium Agent, to be an Assistant Sub-Deputy Opium Agent, probationary grade, *sub pro tem.*

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 4th February, 1890.—In consequence of the death, on the 2nd January, 1890, of Mr. W. Cracroft, Sub-Deputy Opium Agent, fourth grade, the following promotions are made in the Opium Department, to take effect from the 3rd idem :—

Mr. C. Paterson, Sub-Deputy Opium Agent, fifth grade, to be Sub-Deputy Opium Agent, fourth grade.

Mr. J. E. Hand, Assistant Sub-Deputy Opium Agent, first grade, to be Sub-Deputy Opium Agent, fifth grade.

Mr. T. E. D. Innes, Assistant Sub-Deputy Opium Agent, second grade, to be Assistant Sub-Deputy Opium Agent, first grade.

Mr. W. H. T. Howey, Assistant Sub-Deputy Opium Agent, second grade *sub. pro tem.*, to be confirmed in that grade.

Mr. R. W. Pyne. Assistant Sub-Deputy Opium Agent, third grade, to be Assistant Sub-Deputy Opium Agent, second grade, *sub. pro tem.*

Mr. C. J. C. Ricker, Assistant Sub-Deputy Opium Agent, third grade *sub. pro tem.*, to be confirmed in that grade.

Mr. E. A. Gennoe, Assistant Sub-Deputy Opium Agent, probationary grade, to be Assistant Sub-Deputy Opium Agent, third grade, *sub. pro tem.*

Mr. F. W. Harris, Assistant Sub-Deputy Opium Agent, probationary grade *sub. pro tem.*, to be confirmed in that grade.

Baboo Keshri Narain, Officiating Assistant Sub-Deputy Opium Agent, to be Assistant Sub-Deputy Opium Agent, probationary grade, *sub. pro tem.*

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 4th February 1890.—The following rules framed by the Board of Revenue under clause (*c*), section 9 of the Sea Customs Act VIII of 1878, to provide for the weighment of salt by licensed weighmen at the Port of Calcutta, having received the sanction of the Licutenant-Governor, are published for general information :—

I. From the date of the publication of these rules, no person, other than a weighman licensed under them, shall be employed to weigh salt either on board importing vessels or at the Sulkea warehouses.

II. A weighman includes an assistant.

III. The duty of supplying licensed weighmen may be entrusted to contractors or sirdar weighmen, who will be appointed on the recommendation of the Superintendent of the Preventive Service and receive a license. Contractors and sirdars who have not been licensed by the Collector of Customs will not be recognised by Customs officers.

IV. Any person wishing to become a licensed weighman will be supplied, on application to the Collector of Customs, with a form which he will be required to fill up, and such application should ordinarily be supported by a recommendation from some person directly interested in the importation and weighment of salt. If he is considered suitable, a license will then be granted to the applicant.

V. A licensed weighman, who is guilty of refusal or neglect of duty, may be suspended or dismissed.

VI. Licensed weighmen will make their own arrangements with those persons who require their services, and in this respect Government will not exercise any control over them ; but they are strictly prohibited from receiving any reward or present from the buyers, or their representatives, under penalty of dismissal and of a criminal prosecution.

VII. When on duty a licensed weighman will be required to wear a brass badge, and will be bound to produce his license if asked to do so.

VIII. A complete list of licensed contractors, sirdar weighmen, and weighmen will be supplied to any person interested in the weighment of salt upon application.

Form of Contractor's License.

A. B. is hereby appointed a licensed contractor for the supply of licensed weighmen under the rules prescribed by the Board of Revenue.

Form of Application for Weighman's License.

I, , son of , resident of in the district of , at present residing at , desiring to obtain a license authorizing me to weigh salt on board ships as well as at the Sulkea warehouses, beg respectfully to submit this petition.

I undertake to perform my duties faithfully to Government, and to obey any lawful commands that I may receive.

Form of Weighman's License.

A. B. is hereby appointed a licensed weighman under the rules prescribed by the Board of Revenue.

Descriptive Roll.

NAME.	Father's name.	Residence.	Present residence.	By whom recommended

K. G. GUPTA, *Offg. Secretary.*

BOARD OF REVENUE, L.P.; CALCUTTA.

DECLARATION.

The 31st January 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz. for the construction of the proposed central distillery at Khoolna, in the village of Tootpara, pergunnah Hogla, zillah Khoolna, it is hereby declared that for the above purpose a piece of land measuring, more or less, 3 beegahs 9 cottahs and 10 chittacks of standard measurement, bounded on the North by the house of Ram Charan Ghose; East by the Strand Road on the bank of the river Roopsa; South by the land of Ram Charan Ghose and others; and West by Kali Charan Boona's land, is required within the aforesaid village of Tootpara.

A plan of the required land may be inspected at the Collector's office.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 31st January 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz. for a distillery in the village of Bankoora-Rampore, pergunnah Bishanpore, thana Bankoora, zillah Bankoora, it is hereby declared that for the above purpose a piece of land measuring, more or less, 2 beegahs and 4 gandas of standard measurement, bounded on the North by Dasu Bauri's house and a piece of waste land; East by Jagat Baishnabi's garden; South by waste *debattar* land of "Raghu Nath Jieu"; and West by the tank called "Duber Band," is required within the aforesaid village of Bankoora-Rampore.

A plan of the required land may be inspected at the Collector's office.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

JUDICIAL DEPARTMENT.

No. 162A.

The 30th January 1890.—The following gentlemen are appointed to be Honorary Magistrates of the Bench at Khoorda, in the district of Pooree, and are vested with the powers of a Magistrate of the third class:—

Chowdhury Aziz Mohamed. | Pandit Jogobandhu Mohapater.
Baboo Khrustna Mohan Patnaik.

The Lieutenant-Governor accepts the resignation tendered by Ray Bhagbut Mohanti Bahadur of his appointment as an Honorary Magistrate of the Bench at Khoorda, in the district of Pooree.

Baboo Kherod Chundra Roy is appointed to be an Honorary Magistrate of the Independent Bench at the head-quarters of the Madaripore sub-division of the district of Furreedpore, and is vested with the powers of a Magistrate of the third class.

The 31st January 1890.—Baboo Hemango Chandra Bose, Subordinate Judge, Hooghly, is allowed leave for six months, under article 369 of the Civil Service Regulations, with effect from the afternoon of the 14th December 1889.

Baboo Jodu Nath Das, Subordinate Judge of Patna, is allowed leave for one month and twelve days, under article 306(*b*) of the Civil Service Regulations, with effect from the date on which he availed himself of it.

The 1st February 1890.—Mr. Taheiruddin Ahmed, substantive *pro tempore* Munsif of Arrareah, in the district of Purneah, is appointed to be a substantive *pro tempore* Additional Munsif in the district of Dacca, to be ordinarily stationed at the Sudder station.

Baboo Nibarun Chandra Banerjee, Additional Munsif of Dacca, is appointed to be a Munsif in the district of Purneah, to be ordinarily stationed at Arrareah.

Baboo Sri Hari Lahiri, B.L., is appointed to act, until further orders, as a Munsif in the district of Purneah, to be ordinarily stationed at Arrareah, *vice* Baboo Nibarun Chandra Banerjee.

Baboo Ashutosh Chatterjee is appointed to be an Honorary Magistrate of the Kooshtea Bench, in the district of Nuddea, and is vested with the powers of a Magistrate of the third class.

The Lieutenant-Governor accepts the resignation tendered by Baboo Upendra Chundra Roy of his appointment as an Honorary Magistrate of the Narail Bench, in the district of Jessore.

Baboo Mohendro Nath Banerjee is appointed to be an Honorary Magistrate of the Municipal Bench at Kotrung, in the district of Hooghly, and is vested with the powers of a Magistrate of the third class.

Baboo Bungshidhur Sen is appointed to be an Honorary Magistrate of the Narail Bench, in the district of Jessore, and is vested with the powers of a Magistrate of the third class.

The 4th February 1890.—Baboo Rajendra Lal Ghosh, B.L., is appointed to act as a Munsif in the district of Gya, to be ordinarily stationed at the Sudder station of that district, during the absence, on leave, of Shah Latafut Hossein, or until further orders.

Baboo Bepin Behary Mookerjee, Deputy Magistrate and Deputy Collector, Bhagulpore, is vested with powers under sections 110, 133, 143, 144, 174, 186, 191 and 524 of the Code of Criminal Procedure.

Baboo Bepin Behary Bose is appointed to be an Honorary Magistrate of the Independent Bench at Jessore, and is vested with the powers of a Magistrate of the third class.

Under the authority vested in him by the final clause of section 357 of the Code of Criminal Procedure, Act X of 1882, the Lieutenant-Governor empowers Moulvie Sarfraz Hossein Khan and Moulvie Mohamad Quaim, Honorary Magistrates of the Jhowgunge Bench, Patna, to take down evidence in criminal cases in the English language.

GRANT OF LEAVE TO MUNSIFS.—*The 31st January* 1890.—Shah Latafut Hossein, Munsif of Gya, is allowed leave for two months, under article 369 of the Civil Service Regulations, with effect from the date on which he may be relieved.

The 1st February 1890.—Baboo Gobind Deb Mukerjee, Munsif of Sudharam, in the district of Noakholly, is allowed leave for six months, under articles 266 and 369 of the Civil Service Regulations, with effect from the 25th January 1890.

Baboo Hari Narain Roy, Munsif of Sibgunge, in the district of Rajshahye, is allowed leave for one year, under article 371 of the Civil Service Regulations, with effect from the date on which he may be relieved.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATION.

The 1st February 1890.—The following revised rule is substituted for Rule XV of the Rules made by the Lieutenant-Governor under the power vested in him by section 4 of Act III (B.C.) of 1879 (entitled "an Act to provide for the periodical inspection of Steam-boilers and Prime-movers attached thereto in the Town and Suburbs of Calcutta and in Howrah"), and since extended by notifications to places in the districts of Hooghly, Howrah, and the 24-Pergunnahs, within a radius of 30 miles from Calcutta, to the sub-divisions of Raneegunge, Giridhi, and Gobindpore, and the district of the Sonthal Pergunnahs :—

XV. The Inspector shall give one week's notice of every such intended thorough examination ; and if after that notice the boilers are not empty, cool, clean, and ready for inspection on the date named, the Inspector shall prohibit the boilers from working, and shall report the case to the Commissioners. Further, if any request be made to remove fittings or settings, and such be not complied with, the Inspector shall in like manner stop the working of the boilers.

Provided that the inspection of boilers in the Raneegunge, Giridhi, and Gobindpore sub-divisions, and in the district of the Sonthal Pergunnahs, shall be made during the months of November to May inclusive, and the Inspector shall give 14 days' notice of the day when he will make such inspection.

If any boiler needs inspection in the Raneegunge, Giridhi, and Gobindpore sub-divisions, and in the district of the Sonthal Pergunnahs, during the months of June to October inclusive, either as being a new boiler requiring a certificate, or as being a boiler which the owner for any other reason wishes to have inspected, it may, on the application of the owner, manager, or agent, be inspected during that period.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

[Second Publication.]

NOTIFICATION.

The 21st January 1890.—Under section 2 of Act II (B.C) of 1867 (an Act to provide for the punishment of public gambling and the keeping of common gaming houses), the Lieutenant-Governor is pleased to authorize the extension, from the 1st February 1890, of the provisions of the said Act to the villages of Saidpore and Kuja Saidpore (commonly known as the town and bazar of Saidpore), within the jurisdiction of the police-station of Nilphamari and the district of Rungpore. The boundaries of the tract within which the said Act shall be in force are as follows:—

North—A straight line drawn from the Saidpore Rifle Range to Pénduram Bairagi's house.

South—A straight line drawn from the east of Baboopara to the village road east of Nanku Havildar's para.

East—A straight line drawn from Penduram Bairagi's house to the east of Baboopara.

West—A straight line drawn from the village road east of Nanku Havildar's para to the Saidpore Rifle Range.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

[Second Publication.]

NOTIFICATION.

The 22nd January 1890.—It is hereby notified that the Lieutenant-Governor authorises the extension of the provisions of section 34 of Act V of 1861 to the town comprising the places known as Makundprosad, Jagarsing and Gurujang, in the district of Pooree, within the boundaries noted below, with effect from the 1st April 1890—

Bounded on the north by Tangiapara, Nuagan, Kumbharbast and Kunjiama; on the south by Sanpala, Khorda, and Jaganathpur; on the east by Bartola and Kholadwar; on the west by Sardhapur.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

[Third Publication.]

NOTIFICATION.

The 18th January 1890.—Under section 2 of Act II (B.C.) of 1867 (an Act to provide for the punishment of public gambling and the keeping of common gaming-houses), the Lieutenant-Governor authorizes the extension, from the 1st February 1890, of the provisions of sections 11 to 14 of the said Act to the town of Rampore Hât (including Brahamanigram, Kalisanra, and Khalasiparah), in the district of Beerbhoom.

2. For the purposes of the above Act, the boundaries of the place shall be as follows:—

North—East Indian Railway Rifle Butts.
South—Sanghatta khal.
East—Khair tank.
West—Village Suialla.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

DECLARATION.

The 4th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for a police outpost in the village of Khaprail Bazar, pergunnah Midnapore, zillah Midnapore, it is hereby declared that for the above purpose a piece of land measuring, more or less, 7 cottahs and 8 chittaks of standard measurement, bounded on the east by the house of Issur Panday, on the north and west by public roads, and on the south by Ram Moyra and Baburam Garari's house, is required within the aforesaid village of Khaprail Bazar.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT,—BENGAL.

IRRIGATION.

The 4th February 1890.

No. 31.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for a chowkidar's shed on the Lathan Distributary at the 7th mile 30th chain, it is hereby declared that for the above purpose a piece of land measuring about 243 feet in length and 140 feet in width, and containing an area of 3 roods and 5 poles, more or less,

situate in mouzah Katarea, pergunnah Pero, bounded on the north by lands belonging to Ramdeyal Rai and Ramtahal Rai; on the east by lands belonging to Ramdeyal Rai; on the south by lands belonging to Loochal Churihor; and on the west by the Lathan Distributary, is required in the district of Shahabad.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

J. M. McNEILE, *Col.*, R.E.,
Secretary to the Govt. of Bengal, P. W. Dept.

ESTABLISHMENT.

The 29th January 1890.

No. 27.—Mr. T. E. Owen, Executive Engineer, first grade, and Officiating Under-Secretary in the Railway Branch of this Department, is granted six months' leave on urgent private affairs, with effect from the 1st of March 1890, or such date as he may avail himself of it.

No. 28.—Mr. H. B. Taylor, Executive Engineer, temporary rank, employed on the Assam-Behar Section of the Eastern Bengal State Railway, is temporarily attached to the Public Works Secretariat on special duty.

CIVIL BUILDINGS.

The 31st January 1890.

No. 29.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for the Post Office at Jajepur, in the village of Naharapore, pergunnah Jajepur, zillah Cuttack, it is hereby declared that for the above purpose a piece of land measuring, more or less, 1 rood and 29 poles of standard measurement, bounded on the north and east by municipal roads, and on the west and south by the mehal land of Avimanu Punda, Judhisty Punda, Bhim Punda, Arjoon Punda, Nakul Punda, and Banchanidhi Punda, is required within the aforesaid village of Naharapore.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

COMMUNICATIONS.

The 31st January 1890.

No. 30.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for the construction of a permanent bungalow in the village of Bandgoan on the second section of the Ranchi and Chybassa road, pergunnah Porahat, zillah Chybassa, it is hereby declared that for the above purpose a piece of land measuring, more or less, 34 bighas 10 cottahs and 14 chittacks of standard measurement, bounded on the north, west, south, and east by lands of Baboo Jugmohan Singh, is required within the aforesaid village of Bandgoan.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

The 4th February 1890.

No. 32.—*Notification.*—The Lieutenant-Governor is pleased to direct the formation of a Public Works Division, to be called the Sikkim Division, and to have its head-quarters at Gantok.

The Sikkim Division will comprise all works in Sikkim.

Mr. J. C. White is appointed to be Executive Engineer of the Sikkim Division, in addition to his duties as Assistant Political Officer at Gantok.

MILITARY.

The 4th February 1890.

No. 33.—*Notification.*—The declarations, dated the 12th July 1887, made under section 6 of Act X of 1870 of the Government of India, which were published at page 632 of the *Calcutta Gazette* of the 13th idem, for the acquisition of lands for encamping grounds at Hilsa, Islampore and Khizirserai on the Futtooa-Gya road, are hereby cancelled.

RAILWAY.

The 4th February 1890.

No. 34.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for doubling the Kidderpore Dock line of the Eastern Bengal State Railway, Southern Section, at Ballygunge, in mouzah Punchannogram, pergunnah Dehee Punchannogram, zillah 24-Pergunnahs, it is hereby declared that for the above purpose a piece of land measuring, more or less, 5 bighas and 10 cottahs of standard measurement, bounded on the north by land belonging to Chunder Kanto Ghose; east by land belonging to Nibaron Ghose, Bhoirub Mundle, Chunder Kanto Ghose and others; south by a pucca house belonging to Nibaron Ghose; and west by land belonging to Eastern Bengal State Railway, is required within the aforesaid mouzah Punchannogram at Ballygunge.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

ESTABLISHMENT.

The 4th February 1890.

No. 35.—Mr. H. N. C. Cloete, Executive Engineer, has been granted by Her Majesty's Secretary of State for India an extension of three months' furlough.

No. 36.—Mr. T. H. Wickes, Superintending Engineer, is, on return from furlough, appointed to be Superintending Engineer of the Eastern Circle.

No. 37.—Mr. W. B. Gwyther, Executive Engineer, attached to the First Calcutta Division, is transferred to the Public Works Secretariat for employment on special duty.

No. 38.—Mr. W. H. Nightingale, Officiating Superintending Engineer, Eastern Circle, on being relieved by Mr. Wickes, will revert to his appointment as Inspector of Local Works in the Bhagulpore Division.

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

PUBLIC WORKS DEPARTMENT,—MARINE.

NOTIFICATION No. 30Mne.

The 3rd February 1890.—In accordance with the provisions of section 36 (2) of Act X of 1889, the following abstract account of the receipts and charges of the Ports of Cuttack and Pooree for the year 1888-89, which has been received from the Collector of Cuttack, is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Govt. of Bengal.

Statement showing the Receipts and Charges of the Joint Port Fund of the Cuttack and Pooree Ports for the year 1888-89.

ITEMS.	Amount.	Total.	ITEMS.	Amount.	Total.
	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.
Port dues—vessels	3,916 10 9		Debit balance on 31st March 1888 ...	.....	23,768 9 0
Sale proceeds of a boat	25 0 0				
		3,941 10 9	Vessels and Boat Establishment—		
Sale proceeds of old stores	4 8 0		Establishment	2,330 10 6	
		4 8 0	Dockyard services and supplies ...	1,372 13 3	
			Stores	9 0 0	
			Contingencies	50 9 0	
					3,763 0 9
			General Management—		
			Salary of Port Officer	3,000 0 0	
			Ditto Establishment ...	772 3 1	
			Percentage charges	84 4 5	
			Contingencies	123 1 0	
			Service postage stamps	37 4 0	
			Travelling allowance of Port Officer and others	234 1 0	
					4,250 13 6
			Medical Establishment—		
			Establishment	457 5 0	
			Contingencies	174 12 6	
					632 1 6
			Light-house Establishment—		
			Establishment	312 0 0	
			Contingencies	25 11 3	
					337 11 3
			Pension to Mr. T. Geary, from 1st April 1888 to March 1889, at Rs. 34-0-9 per month	408 9 0	
			Cost of repairing Pooree light-house ...	29 3 0	
					437 12 9
Total Receipts ...	.....	3,946 2 9			
Debit balance on 31st March 1889 ...	.....	29,243 13 3	Total Expenditure ...	.....	9,421 7 0
GRAND TOTAL ...	.....	33,190 0 0	GRAND TOTAL ...	.....	33,190 0 0

NOTIFICATION No. 33Mne.

The 4th February 1890.—Under the powers conferred upon him by section 64 of Act VI of 1884 (The Inland Steam-vessels Act), and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to exempt inland steam-vessels commanded by licensed pilots from the provisions of section 28, sub-section (1), clause (*a*), and section 26, sub-section (2), clause (*a*) of the said Act.

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Govt. of Bengal.

NOTIFICATION No. 34Mne.

The 4th February 1890.—Under the powers conferred upon him by section 64 of Act VI of 1884 (The Inland Steam-vessels Act), and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to declare that persons holding certificates as serangs, granted by the Commissioners for making Improvements in the Port of Calcutta before the date of this notification, shall be allowed to take charge of inland steamers measuring not more than 200 tons gross for two years from this date, after the expiry of which period no one will be permitted to be in charge of any inland steam-vessel who has not in the meantime obtained a certificate of competency under the Act.

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Govt. of Bengal.

[First Publicatoin]

NOTIFICATION No. 29Mne.

The 3rd February 1890.—The following Notice to Mariners is published for general information.

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 16).

BAY OF BENGAL.

ORISSA COAST.

Date of exhibition of new light from Chandipore flagstaff.

IN continuation of Notice to Mariners, No. 49, dated the 31st May 1889, issued by this Office, it is intended to exhibit the new light on the Chandipore flagstaff from the 1st May 1890.

The height of the new light above high-water mark will be 62 feet.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 30th January* 1890.

[Second Publication.]

NOTIFICATION No. 12Mne.

The 24th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 9).

AFRICA—NORTH-EAST SHORE.

GULF OF ADEN.

Permanent Light-ship off Ras Marbut, Aden Harbour.

Information has been received from the Political Resident at Aden that on the 15th February the temporary Light-vessel moored off Ras Marbut, Aden, Harbour, will be replaced by the permanent Light-ship. The vessel is moored in 18 feet at low water, and shows at an elevation of 39 feet above the sea a flashing White Light visible every minute. The vessel is painted Red, but has no Red Ball at mast-head and exhibits no Red Flag during the day as stated at page 90, Chapter IV, 3rd Edition of the Gulf of Aden Pilot.

By direction of the Government of Bengal,

E. W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, *Calcutta, the 22nd January* 1890.

[Second Publication.]

NOTIFICATION No. 14Mne.

The 27th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE.)

NOTICE TO MARINERS—(No. 10).

AFRICA—EAST COAST.

RED SEA—WESTERN SHORE.

A light placed on the island of Difnein, Musawwa Channel.

INFORMATION has been received from the Consul-General for Italy, through the Director of Indian Marine, that a light visible at 6 miles distance, to indicate the North entry of the Musawwa Channel, has been placed on the N.-E. end of the Island of Difnein. The light is in latitude 16° 37′ 8″ N. and longitude 39° 18′ 15″ E. Arc of illumination 195 degrees, leaving a dark sector between the 65° and 250°.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th January* 1890.

[Second Publication.]

NOTIFICATION No. 15Mne.

The 27th January. 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 11).

AUSTRALIA—EAST COAST.

ULLADULLA HARBOUR.

Fixed light on Warden head, and discontinuance of pier light.

THE British Admiralty has given notice (No. 456 of 1889) that on 1st December 1889 a light would be exhibited from a light-house recently erected on Warden head, south side of entrance to Ulladulla harbour.

The light is a *fixed* White light, visible in clear weather from a distance of about 12 miles.

Position: Approximate lat. 35° 22½′ S.; long. 150° 31½′ E.

Also, that on the same date, the light (fixed *green*) previously shown from the pier head, Ulladulla harbour, would be discontinued.

By direction of the Government of Bengal,
EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th January* 1890.

[Second Publication.]

NOTIFICATION No. 16Mne.

The 27th January 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 12).

AFRICA—EAST COAST.

ZANZIBAR ISLAND.

Fixed light on Mwana Mwana Island.

INFORMATION has been received from the British Admiralty (No. 452 of 1889) that a light is now exhibited from a light-house (construction commenced in 1881) on the north extreme of Mwana Mwana island, north-west coast of Zanzibar island.

The light is a *fixed* white light.

Position: Lat. 5° 45′ 10″ S.; long. 39° 13′ 10″ E.

NOTE.—The regular exhibition of this light should not be relied on.

By direction of the Government of Bengal,
EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th January* 1890.

[Second Publication.]

NOTIFICATION No. 17Mne.

The 27th January 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE.)

NOTICE TO MARINERS—(No. 13).

INDIA—SOUTH.

CEYLON—EAST COAST.

A "Torpedo Buoy" placed at the entrance to Trincomalee Harbour.

THE Colonial Government of Ceylon has given notice that on and after 25th December 1889 until 28th February 1890, a Red Buoy, with a red flag and the words "Torpedo Buoy" painted on it, will be placed in the entrance to Trincomalee Harbour between Ostenburg Point and Little Sober Island, and 260 yards from the former.

The water in the triangle formed by this Red Buoy, the E. Point of Small Sober Island and Clappenburg Point, will be obstructed by mines.

All vessels should pass between the Buoy and Ostenburg Point.

By direction of the Government of Bengal,
EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th January* 1890.

[Second Publication.]

NOTIFICATION No. 19Mne.

The 28th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE.)

NOTICE TO MARINERS—(No. 14).

BAY OF BENGAL.

BURMA COAST.

Date of alteration of Savage Island light—Port of Akyab.

WITH reference to Notice to Mariners, No. 50, dated the 31st May 1889, issued by this office, a telegraphic communication has been received from the Port Officer, Akyab, that the transfer of Savage island light, at the entrance of the Port of Akyab, will commence from the 27th instant.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 27th January* 1890.

[Second Publication.]

NOTIFICATION No. 20Mne.

The 28th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 15).

BAY OF BENGAL.

BURMA COAST.

Position of a water-logged Native vessel and pieces of wreckage.

A TELEGRAPHIC communication has been received from the Port Officer, Rangoon, that the Master of the steam-ship *Euphrates* reports having passed on the 23rd instant a water-logged native vessel in latitude 15° 23′ north, longitude 94° 59′ east; also pieces of wreckage when 8 miles off Krishna light-vessel. Shipmasters are cautioned accordingly.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 27th January* 1890.

EASTERN BENGAL STATE RAILWAY SYSTEM.

NOTIFICATION.

No. 1.—Mr. F. D. Kiernander, Assistant Traffic Superintendent, is granted two months' privilege leave, under Articles 277 to 291 of the Civil Service Regulations, 1st edition, with effect from 20th January 1890, or such subsequent date as he may avail himself of the same.

G. F. O. BOUGHEY, *Lieut.-Col., Manager.*

SEALDAH, CALCUTTA, *the 29th January* 1890.

JAIL DEPARTMENT.

No. 1006.—*The 30th January* 1890.—Mr. H. M. Owen made over charge of the Midnapore Central Jail to Mr. C. H. C. Sevenoaks on the forenoon of the 26th January 1890.

M. S. EMERSON,
For Offg. Inspector-General of Jails, Bengal.

CIVIL MEDICAL DEPARTMENT, BENGAL.

No. 993, *dated* 31*st January* 1890.—In Bengal Medical Department Notification No. 10739, dated 21st November 1889, published in the *Calcutta Gazette*, dated 27th November 1889, at page 974, against the name of Civil Hospital Assistant Soshi Kumar Sen's *for* "Sub-division and Dispensary, Fenny, Backergunge," *read* "Sub division and Dispensary, Fenny, Noakholly."

J. M. COATES, M.D.,
For Inspector-General of Civil Hospitals, Bengal.

Sheriff's Office, the 22nd January 1890.

NOTICE is hereby given that the First Criminal Sessions of the year 1890 of the High Court of Judicature at Fort William in Bengal for the Town of Calcutta and Factory of Fort William, and the places subordinate thereto, will be holden at the Court-house in the Town of Calcutta, on Monday, the seventeenth day of February next, at 11 o'clock in the forenoon, and so on from day to day until the said Sessions be over. And it is hereby proclaimed that all persons who will prosecute any of the prisoners to be brought up for trial at the said Sessions be present then and there to prosecute.

H. B. H. TURNER, *Sheriff.*

শরিফ আফিস, সন ১৮৯০ সাল তারিখ ২২শে জানুয়ারি।

সকলকে সমাচার দেওয়া যাইতেছে যে সুবে বাঙ্গালার ফোর্ট উইলিয়ম দুর্গের অধীন শহর কলিকাতার ও অন্যান্য স্থানের ফৌজদারী বিচার নিষ্পত্তি জন্য আগামী সন ১৮৯০ সালের ১৭ই ফেব্রুয়ারি সোমবার বেলা ১১ ঘটিকার সময় এবং যে পর্য্যন্ত সেশিয়ানের কার্য্য শেষ না হয় প্রতিদিন উক্ত সময়ে কলিকাতার হাই কোর্টের আপন আদালত ঘরে সন ১৮৯০ সালের প্রথম ক্রমিনেল সেশিয়ান বসিবেক এবং এতদ্দ্বারা প্রচার করা যাইতেছে যে, যে সকল ব্যক্তি কোন কয়েদির বিরুদ্ধে ফৌজদারী মিছিল করিবেক তাহারা উক্ত স্থানে উক্ত সময়ে হাজির থাকিয়া মোকদ্দমা করে ইতি।

এইচঃ বিঃ এইচঃ টারনার, শরিফ।

TREASURY NOTICE.

UNCOVENANTED DEPUTY COLLECTOR BABOO MONMATHA KUMAR BOSE has been placed in charge of the Beerbhoom Treasury, and is authorized to draw bills on other treasuries.

N. S. ALEXANDER, *Commissioner.*

COMMR.'s OFFICE, BURDWAN DIVN., *the* 30*th January* 1890.

EDUCATION DEPARTMENT, BENGAL.

Subordinate Educational Service.

The 28*th January* 1890.—Babu Nityananda De, Sub-Inspector of Schools under the District Board of Midnapore (class VI), has been granted by the Board leave of absence for four months, under Article 369 of the Civil Service Regulations, with effect from the 1st December 1889.

The 30*th January* 1890.—Babu Braja Syam Mazumdar, Departmental Sub-Inspector of Schools, 24-Pergunnahs (class VI), having returned to duty on the forenoon of the 1st January 1890, the unexpired portion of the leave granted to him under the orders of the 8th January 1890 is cancelled.

Babu Dwarka Nath Bose, B. A., Second Master of the Furreedpore Zillah School (class VI), is allowed leave of absence for one month and ten days, under Article 306 (*b*) of the Civil Service Regulations, with effect from the 22nd December 1889.

Babu Srinath Das, Third Master of the Furreedpore Zillah School (class VII), is appointed to act as Second Master of the same institution, and in class VI, *vice* Babu Dwarka Nath Bose, B A., on leave.

Babu Narendra Deb Ray, Fourth Master of the Furreedpore Zillah School, is appointed to act as Third Master of the same institution, and in class VII, *vice* Babu Srinath Das.

Maulavi Syed Reazut Hussein, Fifth Master of the Mozufferpore Zillah School (class VI), is appointed temporarily to be Third Master of the same institution, *vice* Babu Hari Nath Ray, retired.

Babu Uma Charan Ghosh, Second Master of the Comillah Zillah School (class VI), is declared to have been absent on leave from the 28th October to the 15th November 1889, both days inclusive, viz., twelve days under Article 369 and seven days under Article 372 of the Civil Service Regulations.

Babu Tripura Charan Banerjea, Third Master of the Comillah Zillah School, is declared to have acted as Second Master of that institution, and in class VI, during the absence, on leave, of Babu Uma Charan Ghosh.

A. CROFT,
Director of Public Instruction.

NOTIFICATION OF THE BOARD OF REVENUE.

No. 113B.

NOTICE is hereby given that the Third Sale of Opium, the Provision of 1887-88, will be held at the Government Opium Sale-room, No. 2, Bankshall-street, on Monday the 3rd March 1890, at 11 A.M., and will comprise 4,750 chests, viz.—

	Chests.
Opium manufactured at the Patna Factory ...	... 2,250
Ditto at the Ghazeepore Factory ...	... 2,500
Total	... 4,750

2nd.—The general conditions of the sale now advertised will be the same as usual. The may be ascertained by reference to the Notification issued onthe 26th November 1889, and published in the *Government* and *Exchange Gazettes*, or on personal application at the Office of the Boar of Revenue.

3rd.—The latest dates for deposit and clearance will be the 8th and 18th March 1890, respectively, that is to say no Bank of Bengal Receipts, Government Promissory Notes, or other public securities that may be tendered for deposit in redemption of Promissory Notes given by purchasers in the sale-room will be received after 1-30 P.M. of Saturday, the8thMarch 1890 and no Bank of Bengal Receipts in full payment of lots will be accepted afte 3-30 P.M. of Tuesday, the 18th March 1890.

4th.—In addition to the quantity above advertised for sale, the following quantities, more or less, of the Opium manufactured at the Patna and Ghazeepore Factories will be brought to sale in the present year about the dates specified below. The Board of Revenue, however, reserve to themselves the right of altering these dates should circumstances render it expedient to do so :—

DATES.	Manufactured at the Patna Factory, about chests.	Manufactured at the Ghazeepore Factory, about chests.	Total, about chests.
On or about Wednesday, 2nd April 1890. ..	2,250	2,500	4,750
On or about Thursday, 1st May ,, ...	2,250	2,500	4,750
On or about Monday, 2nd June ,, ...	2,250	2,500	4,750
On or about Wednesday, 2nd July ,, ...	2,250	2,500	4,750
On or about Monday, 4th August ,, ...	2,250	2,500	4,750
On or about Monday, 1st September ,, ..	2,250	2,500	4,750
On or about Wednesday, 1st October ,, ...	2,250	2,500	4,750
On or about Monday, 3rd November ,, ...	2,250	2,500	4,750
On or about Monday, 1st December ,, ...	2,250	2,500	4,750
Total ...	20,250	22,500	42,750

By order of the Board of Revenue, L. P.,
K. G. GUPTA, *Offg. Secretary.*

BOARD OF REVENUE, L. P., *Calcutta, the 28th January* 1890.

ELECTION OF MUNICIPAL COMMISSIONERS.

NOTIFICATION.

IT is hereby notified for general information that at the election held on the 21st August 1889, Baboo Raghubans Sahai was elected a Commissioner in Ward No. III of the Chupra Municipality, in place of Baboo Ganga Sahai, deceased.

J. BOXWELL, *Offg. Commissioner.*

PATNA COMMR.'S OFFICE, BANKIPORE, *the 30th January* 1890.

NOTIFICATION.

IT is hereby notified for general information that an election will be held, under section 27 of Act III (B.C.) of 1884, on 10th of March 1890, in Ward No. II (Kaporiapottee), in the Nattore Municipality, in the district of Rajshahye, for the purpose of electing a Commissioner in the place of Baboo Sarbananda Saha, deceased.

E. E. LOWIS, *Commr., Rajshahye Division.*

The 28th January 1890.

NOTIFICATION.

IT is hereby notified for general information that at the bye-election held on the 15th instant in Ward No. IV of the Baranagore Municipality, in the district of the 24-Pergunnahs, Baboo Hara Kumar Ghosal has been duly elected a Commissioner for the Ward in the place of Baboo Promatha Nath Ghosal, deceased.

A. BHATTACHARJEE, *Personal Assistant in charge.*

COMMR.'S OFFICE, PRESY. DIVN., CALCUTTA, *the 28th January* 1890.

NOTIFICATION.

IT is hereby notified for general information that at the election held under section 27, Act III (B.C.) of 1884, on Monday, the 6th January 1890, Baboo Debendra Nath Ganguli has been elected a Commissioner for Ward No. III of the Dainhat Municipality, in the district of Burdwan, *vice* Baboo Ram Jadu Ghuttuck, resigned.

N. S. ALEXANDER, *Commissioner.*

BURDWAN COMMR.'S OFFICE, *the 24th January* 1890.

ERRATUM.

IN the notification published at page 99, Part I of the *Calcutta Gazette* of the 29th January 1890, regarding the re-distribution of the members for election in the Kandi and Burwan thanas of the Kandi Local Board, in the district of Moorshedabad—*Read* "29th November 1887" *for* "29th March 1887."

A. BHATTACHARJEE, *Personal Assistant, for Commissioner.*

CALCUTTA, *the 3rd February* 1890.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 5, 1890.

PART IA.

Orders and Notifications by the Government of India, &c.

[*Reprinted from the "Gazette of India."*]

The following order, issued by the Government of India in the Home Department, is republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATION—ESTABLISHMENTS.

Calcutta, the 30th January 1890.

No. 57.—In Home Department Notification No. 22, dated the 16th instant, permitting Mr. N. S. Alexander to resign Her Majesty's Bengal Civil Service, *for* "15th March 1890" *read* "6th March 1890."

A. P. MACDONNELL,
Secretary to the Govt. of India.

The following orders, issued by the Government of India in the Department of Finance and Commerce, are republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATIONS.

LEAVE AND APPOINTMENTS.

The 30th January 1890.

No. 489.—Mr. J. C. E. Branson, Deputy Accountant-General, Bombay, is granted furlough for eighteen months, under article 340, Civil Service Regulations, from such date in March 1890 as he may avail himself of it.

The 31st January 1890.

No. 544.

ORDER—By the Government of India, Department of Finance and Commerce.
Read the following:—

INDIA OFFICE;
London, 9th January 1890.

Financial.
No. 4.

To His Excellency the Most Honourable the Governor-General of India in Council.

MY LORD MARQUIS,—I have to inform you that the rate of exchange for the adjustment of financial transactions between the British and Indian Governments for the year 1890-91 has been fixed, with the concurrence of the Lords Commissioners of Her Majesty's Treasury, at one shilling and five pence (1*s.* 5*d.*) the rupee; and I request that you will give

the necessary instructions for the due observance of this rate in respect to all transactions to which it is applicable.

I have, &c.,
(Signed) CROSS.

Ordered that copies of this Despatch be forwarded to the Military and Public Works Departments and to the Comptroller and Auditor-General for information.

Ordered also that this Despatch be published in the *Gazette of India* for general information.

E. J. SINKINSON,
Secretary to the Government of India.

The following orders, issued by the Government of India in the Military Department, are republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

Fort William, the 31st January 1890.

APPOINTMENTS.

MEDICAL DEPARTMENT.

No. 96.—Brigade-Surgeon H. Potter, M.D., Indian Medical Service, Bengal Establishment, to be Medical Store-keeper, Mian Mir. Dated 14th January 1890.

FURLOUGH AND LEAVE.

No. 106.—The undermentioned officers have been granted extensions of furlough or leave by the Secretary of State for India :—

* * * * *

Surgeon-Major R. G. Mathew (m. c.), for six months.

LONDON GAZETTE.

No. 108.—The following extracts are published for general information :—

Supplement to the "London Gazette," dated the 1st January 1890, Page 1.

India Office, January 1, 1890.

The Queen has been graciously pleased to make the following promotion in, and appointments to, the Most Eminent Order of the Indian Empire :—

* * * * *

To be Companions.

* * * * *

Brigade-Surgeon George King, M.B., Bengal Medical Service, Superintendent of the Royal Botanical Gardens, Calcutta.

VOLUNTEER CORPS.

APPOINTMENTS.

No. 115.—*Calcutta Light Horse*—

Troop Sergeant-Major George Charles Hodgson to be Second Lieutenant.

No. 116.—*Calcutta Volunteer Rifle Corps*—

Messrs. Alfred Burton Truefitt and Walter Gasper Gregory to be Second Lieutenants, to complete the establishment.

PROMOTIONS.

No. 121.—*Calcutta Volunteer Rifle Corps*—

Lieutenant Martin Zachariah Martin to be Captain, and Second Lieutenants James Thomas Meade, John James FitzWilliam, Marcus Tullius Cox and Henry Albert Stewart to be Lieutenants, to complete the establishment.

E. H. H. COLLEN,
Secretary to the Govt. of India.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 12, 1890.

PART IB.

ORDERS BY THE LIEUT.-GOVERNOR OF BENGAL.

MUNICIPAL AND LOCAL.

NOTIFICATION.

The 5th February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Mr. E. Stewart, Sub-divisional Officer, to be the Chairman of the Madhubani Municipality in the district of Durbungah, *vice* Mr. W. Maude, C.S., transferred.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 6th February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Mr. C. A. White, Executive Engineer, to be a Commissioner of the Sewan Municipality in the district of Sarun, *vice* Mr. A. G. Tytler, resigned.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 7th February 1890.—It is hereby notified that the members of the Rampore Hât Local Board, in the district of Beerbhoom, having at a meeting, under section 25 of Act III (B.C.) of 1885, requested the Lieutenant-Governor to appoint a Chairman, the Lieutenant-Governor is pleased, under the said section, to appoint Mr. C. J. Stevenson Moore, C.S., the Sub-divisional Officer of Rampore Hât, to be Chairman of that Local Board.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 7th February 1890.—Whereas a notification, dated the 28th September 1889, was published at page 217, Part IB of the *Calcutta Gazette* of the 2nd October 1889, declaring the Lieutenant-Governor's intention to sanction, under section 86 of the Bengal Municipal Act III (B.C) of 1884, the levy by the Commissioners of the Motihari Municipality, in the district of Chumparun, of a fee, under section 143, on the registration, under section 142, of all carts kept or habitually used within the Municipality, and whereas no good reasons have been shown to the contrary, it is notified for general information that the Lieutenant-Governor hereby sanctions the levy, by the Commissioners of the Motihari Municipality, of the fee on the registration of carts at the rates not exceeding those mentioned in section 143.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 7th February 1890.—Whereas a notification, dated the 17th November 1889, was published at page 248, Part IB of the *Calcutta Gazette* of the 20th idem, declaring the intention of the Lieutenant-Governor to extend the provisions of Part IX of Act III (B.C.) of 1884 to the Dinagepore Municipality, and whereas no objection has been raised to the proposal within one month from the date of the publication of the above notification within the Municipality, it is hereby notified for general information that, in the exercise of the power vested in the Local Government by section 221 of the Act, and in accordance with the recommendation of the Commissioners of the Dinagepore Municipality, made at a meeting, the Lieutenant-Governor sanctions the extension of Part IX of the Municipal Act to the said Municipality.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 7th February 1890.—It is hereby notified that, under section 7, Act III (B.C.) of 1885, the following gentlemen have been elected to be members of the District Board of Beerbhoom :—

Local Boards by which elected.	Names of members.
Soory	Baboo Madan Gopal Sing. „ Kamalakshya Chatterjea. „ Rajat Sekhar Rai.
Rampore Hât	Baboo Surat Nath Mukerjea. „ Kedarnath Mittra. Munshi Abdus Sobhan.

2. The following gentlemen are appointed, under section 7 of the Act, to be members of the Board—

The Civil Surgeon of the district, *ex-officio.*
The Deputy Inspector of Schools, *ex-officio.*
The Road Cess Deputy Collector, *ex-officio.*
The Revd. A. McKenna.
Baboo Chandragati Mustafi.
„ Bunwari Lal Sen.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 7th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Soory Local Board, in the district of Beerbhoom, under section 25 of Act III (B.C.) of 1885, of Baboo Madan Gopal Singh to be their Chairman.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 7th February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Baboo Kedar Krishna Banerjea to be the Chairman of the Jhaldah Municipality, in the district of Manbhoom, *vice* Baboo Kedarnath Mittra, resigned.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 8th February 1890.—It is hereby notified that, under section 24 of the Bengal Local Self-Government Act III (B. C.) of 1885, the Lieutenant-Governor is pleased to re-appoint the Magistrate of Midnapore to be the Chairman of the Midnapore District Board, with effect from the 27th January 1890.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 11th February 1890.—It is hereby notified for general information that, under section 138 of the Bengal Local Self-Government Act III (B.C.) of 1885, the Lieutenant-Governor is pleased to alter Rule 81, Part IV of the rules made under clauses (*b*), (*c*), (*d*), (*e*), (*f*), (*h*), (*j*), (*q*), (*s*) and (*t*) of the said section. The rule, as now amended, is as follows :—

"81. The latest day for the submission of the statement of the requirements and probable expenditure of the District Board for the ensuing financial year shall be the 15th of November."

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 6th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the expense of the Calcutta Municipality for a public purpose, viz., widening the bye-lane from premises Nos. 98 to 104, Upper Chitpore Road, it is hereby declared that for the above purpose pieces of land, Nos. 99 and 104, Upper Chitpore Road in the town of Calcutta, district 24-Pergunnahs, measuring, more or less, 3 chittacks and 24 square feet only, are required.

The boundaries of the lands are as follow :—

Portion marked A on plan.—On the North and West a public bye-lane; on the South portion of premises No. 99, Upper Chitpore Road; and on the East premises No. 100, Upper Chitpore Road.

Portion marked B on plan.—On the North and East portion of premises No. 104, Upper Chitpore Road; on the South a public bye-lane; and on the West Upper Chitpore Road.

Plans and specifications of the land are filed in the office of the Commissioners for public inspection.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 6th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the expense of the Calcutta Municipality for a public purpose, viz, for widening the filled up drain connecting Williams' Lane with Old Bytakhana Bazar Road, it is hereby declared that for the above purpose pieces of land, Nos. 19 and 20 Scott's Lane, and No. 1, Williams' Lane in the town of Calcutta, district 24-Pergunnahs, measuring, more or less, 2 cottahs 12 chittacks and 22 square feet only, are required.

The boundaries of the lands are as follow :—

Portion marked A on plan.—On the North portion of No. 20, Scott's Lane; on the South a public filled up drain; on the East Old Bytakhana Bazar Road; and on the West a passage.

Portion marked B on plan.—On the North portions of No. 1, Williams' Lane and No. 19, Scott's Lane; on the South a public filled up drain; on the East portion of No. 19, Scott's Lane; and on the West Williams' Lane.

A plan and specifications of the lands are filed in the office of the Municipal Commissioners for public inspection.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 7th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the expense of the Dacca Municipality for a public purpose, viz., for the improvement of the trench for the suction pipe for the use of the water works in the town of Dacca, station Lalbag, zillah Dacca, it is hereby declared that for the above purpose pieces of lands measuring, more or less, 12 cottahs and 8 dhoors of standard measurement, are required. The pieces of lands are bounded as follows :—

Plot No. I.—On the North by the main road; on the South by the foreshore of the river Boorigunga; on the East by the trench of the suction pipe; and on the West by the land of Baboo Manick Chand Saha and of Rahimuddi Meah.

Plot No. II.—On the North by the main road and the land of Basanta Lall and Hemanta Lall Dobe; on the South by the foreshore of the river; on the East by the land of Basanta Lall and Hemanta Lall Dobe; and on the West by the trench of the suction pipe.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 7th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the expense of the Calcutta Municipality for a public purpose, viz., for a new road from Banerjee's Lane to Amherst Street, it is hereby declared that for the above purpose pieces of land Nos. 172, Bowbazar Street, 14-1, 5, 48-2, 53 and 54, Choonapooker Lane, 4, Nitaie Baboo's Lane, and 150, Amherst Street, in the town of Calcutta, district 24-Pergunnahs, measuring, more or less, 9 cottahs 1 chittack and 36 square feet only, are required.

The boundaries of the lands are as follows—

Portion marked A on plan.—On the North partly premises No. 53, Choonapooker Lane and partly Choonapooker Lane; on the South partly Choonapooker Lane and partly premises No. 55, Choonapooker Lane, portion of premises No. 54, Choonapooker Lane and portion of premises No. 172, Bowbazar Street; on the East Choonapooker Lane; and on the West partly portion of premises No. 54, Choonapooker Lane and partly Banerjee's Lane.

Portion marked B on plan.—On the North portion of premises No. 48-2, Choonapooker Lane; and on the South, East, and West Choonapooker Lane.

Portion marked C on plan.—On the North and East portion of premises No. 15, Choonapooker Lane; and on the South and West Choonapooker Lane.

Portion marked D on plan.—On the North and East public filled up drains; on the South No. 14-1, Choonapooker Lane; and on the West Choonapooker Lane.

Portion marked E on plan.—On the North portions of premises Nos. 5 and 4, Nitaie Baboo's Lane; on the East Nitaie Baboo's Lane; and on the West a public filled up drain.

Portion marked F on plan—On the North and South premises No. 150, Amherst Street; on the East Amherst Street; and on the West Nitaie Baboo's Lane.

A plan and estimates of the land to be required are in the office of the Commissioners for public inspection.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 7th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the expense of the Calcutta Municipality for a public purpose, viz., for the construction of a dhobikhana, it is hereby declared that for the above purpose a piece of land No. 3, Woolfutbagan Road, Dihi Punchannogram, district 24-Pergunnahs, measuring, more or less, 5 bigahs and 14 cottahs only, are required.

The boundaries of the land are as follows :—

On the North a passage; on the South portion of No. 3, Woolfutbagan Road; on the East partly a public latrine and partly No. 283, Lower Circular Road; and on the West Woolfutbagan Road.

A plan and estimates of the land to be acquired are in the office of the Commissioners for public inspection.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 8th February 1890.—Mr. L. P. Shirres, Joint-Magistrate, is appointed to be Vice-Chairman of the District Road Committee of Lohardugga, *vice* Mr. G. W. Place, transferred.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 12, 1890.

PART II.

Advertisements.

[N. B.—Advertisements, Notices, &c., intended for insertion in this part of the Gazette, cannot be received after Noon on Monday.]

LAND SALE NOTICES.

NOTICE is hereby given that the undermentioned plots of the Nizamut lakhiraj State lands situated in the district of Nuddea will be put up to sale at the Collectorate of Nuddea on the 13th March 1890, corresponding with 1st Chyte 1296 B.S.

The purchasers of the plots will be subject to the following conditions :—

I.—The plots will be sold revenue free to the highest bidders above the upset price.

II.—The sale to be subject to existing leases and to the rights conferred by the settlement proceedings and by the laws in force, and purchasers to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the Revenue authorities.

III.—If the amount of the purchase-money do not exceed Rs. 100, the whole amount will be paid down at once.

IV.—If the amount of the purchase-money exceed Rs. 100, one-fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the fifteenth day after the sale, reckoning the day of sale as one, or, if that day be a close holiday, then by noon of the first succeeding office day, the sale to be cancelled (the sum deposited being forfeited to Government), and the estates to be again put up for sale at the risk of the defaulting purchasers after issue of advertisement as in the case of original sale.

V.—The purchasers shall be put in possession on receipt of the orders of the Collector approving of the sales, but such possession shall be liable to be disturbed in case the final confirmation of the Board of Revenue should not be accorded to the proceedings.

Consecutive number of plot.	Name of estate.	Mouzah.	Pergunnah.	Approximate area in bighas.	Annual assessment.	Upset price.	Boundaries.	REMARKS.
				B. K. CH.	Rs. A. P.	Rs. A. P.		
1	Anjongachi in Bartoil.	Bahaliapara in Bartoil.	Mohamedshahye.	31 7 14	12 0 0	313 5 0	North, east, and south of jote lands of Hingoorun Bol and others of Bartoil, west of the confines of mouzah Belgharia.	Mourashi jote of Banesh Chandra Sarkar of Belgachi and dwelling-house of Gopal Chandra Ghose of Bartoil.
2	Anjongachi ...	Anjongachi ...	Taragoonah	394 1 10	93 0 0	3,936 11 0	West of the dwelling-houses of Chuni Shosh and Nabin Mandal Ghose and others, ryots of the zemindars of Chitna; north of the nij-jote lands of the aforesaid zemindars; east of the confines of Khairpur; south of the nij-jote lands of the aforesaid zemindars.	Mourashi jote of Banesh Chandra Sarkar of Belgachi.
3	Dak Adda ...	Kulberia ...	Plassey ...	1 4 8	2 12 6	40 0 0	East and north of a public road, south and west of jote lands of Brojo Lal Rai.	Plot No. I, khas Nizamut.
							South of jote lands of Gurudoyal Sinha and Bhikoo Mandal; east and north of jote lands of Pancharan Rai; west of jote lands of Bani Mandal.	Plot No. II, khas Nizamut.

Nuddea Collectorate, the 14th January 1890.

N. K. BOSE, for Collector.

NOTICE is hereby given that the undermentioned plot of the Nizamut lakhraj State lands, situate in the distr ic of 24-Pergunnahs, will be put up to sale at the Collectorate of the 24-Pergunnahs on Friday, the 28th March 1890—

The purchaser of the plot will be subject to the following conditions :—

I.—The plot will be sold revenue-free to the highest bidder above the upset price.

II.—The sale to be subject to existing leases, and to the rights conferred by the settlement proceedings and by the laws in force, and purchaser to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the revenue authorities.

III.—If the amount of the purchase-money do not exceed Rs. 100, the whole amount will be paid down at once.

IV.—If the amount of the purchase-money exceed Rs. 100, one fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the 15th day after the sale, reckoning the day of sale as one, or if that day be a close holiday, then by noon of the first succeeding office day, the sale to be cancelled (the sum deposited being forfeited to Government), and the plot to be again put up for sale at the risk of the defaulting purchaser after issue of advertisement as in the case of original sale.

V.—The purchaser shall be put in possession on receipt of the orders of the Collector approving of the sale, but such possession shall be liable to be disturbed in case the final confirmaton of the Board of Revenue should not be accorded to the proceedings.

Name of estate.	Mouzah.	Pergunnah.	Approximate area.	Annual assessment.	Upset price.	Boundaries.	REMARKS.
			B. K. CH.	RS. A. P.	RS. A. P.		
Dak Adda	Chitpore ...	Amirabad...	0 3 6	16 14 0	506 4 0	South of the dwelling house of Jitu Dhobi, east of the tank belonging to Zebunnissa Begum, north of the dwelling house of Talemun Jemadar, and west of a public road and the sepoy post.	Dwelling-house of Kudroo Dhobi of Chitpore.

K. N. ROY, Deputy Collector, for Collector on tour.

NOTICE is hereby given, under section 6, Act XI of 1859, section 11, Act VII (B.C.) of 1868, and Act II (B.C.) of 1871, that the undermentioned dependent tenures in the Town Khas Mehal, in the district of Chittagong, will be put up to public and unreserved sale at the Collector's Office of that district on the 3rd day of March 1890, for arrears of rent and cesses remaining unpaid after the latest day of payment, the 26th day of December 1889.

Khas Tehsil Office, Town Circle.

Serial No.	No. of tenures in register No. I.	Names of tenures and their situation.	ANNUAL RENTAL.		THE AMOUNT OF ARREARS FOR WHICH THE TENURES TO BE SOLD.			REMARKS.
			Rent.	Cess.	Rent.	Cess.	Total.	
		Thana town mouzah Bakalya, mehal Noabad.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
1	887	20134/559 Taluq Manindra Chandra Ghose and others.	3,373 6 0	226 9 0	843 0 0	56 11 0	899 11 0	The entire taluqs will be sold.
		Mouzah ditto, thana ditto.						
2	895A	20134/559(ক) Taluq Khetra Moni Dasi and others.	1,135 11 9	44 6 0	284 0 0	11 1 0	295 1 0	
		Thana Fatikchir, mouzah Jouzkhala, mehal Noabad.						
3	4818	23878/588 Taluq Obedar Rahaman Khan	2,344 0	102 9 0	693 0 0	5 5 9	698 5 9	

Chittagong, the 14th January 1890. C. H. ALLEN, for Offg. Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Khulna will be put up for sale at the Collector's Office of that district on the 26th March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

1	2	3	4	5	6	7	8	9
No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		RS. A. P.				RS. A. P.	RS. A. P.	RS. A. P.
114-1	Kismut pergunnah Ba,,'pur.	2,124 4 7	.....	Share No.1, 3as. 3g. 2c. 16d.	Shital Nath Bhanga and others.	420 2 8	.....	22 8 0
127-1	Kismut pergunnah Bhaluka	14,943 15 8	.....	Share No. 1, 4g. 13-5-8-[illegible]	Grijanath Ray Chowdhury and others	224 13 5	... ..	31 10 5
159-4	Kismut Ramdanga, pergunnah Sarparajpur.	549 13 8	....	Share No. 4, 2as. ..	Haran Chandra Majumdar and others.	68 11 8	.....	13 3 2
170-2	Kismut pergunnah Silimabad.	5,784 6 6	...	Share No. 2, 2as. 9g.	Syamacharan Bosu and others.	885 11 9	.....,	310 15 6

Khulna Collectorate, the 8th February 1890. B. DE, Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Dacca will be put up for sale at the Collector's Office of that district on the 26th March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realised in the same manner as arrears of revenue.

When in columns 5, 7 and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Touji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
115	Pergunnah Patpashar, Banameh Mahadev Mukhopadhya.	10,768 0 1½	.....	Residue share ...	Hara Sundari Chaudhurani and others.	8,973 5 4½	... ..	3,624 7 4½
				Hisya 2a. 13g. 1kr. 1kt.	Monindra Nath Mukhopadhya and others.	1,794 10 9	.....	725 9 7
193	Pergunnah Rajnagar, tuppeh Hosainabad Jawar Hyderabad Khachak Pitrush market.	688 5 4½	Entire estate.	.....	Sukhmoy Chandra Das himself and manager for Gour Hari Das and others.	.....	69 12 2½	.....
194	Pergunnah Rajnagar, hisya Raj Krishna Sen, Chakla Nurpur Hurunnessa.	708 9 11½	.....	Residue share ...	Husni Khanam and others.	261 13 6½	.....	78 11 9
197	Pergunnah Rajnagar, Chakla Nurpur, Debi Prosad Sen.	632 10 5½	.....	Hisya 2g. 3kr. 3kt.	Durga Sunkor Sen ...	5 7 9	.....	2 8 1
272	Pergunnah Shahebabad May Peshkosh Dowani, Banameh Mirza Hyderali.	533 5 4	.....	Residue share ...	Rajendra Narain Bandapadhya.	133 5 1	.....	83 7 1
				Hisya 1a. 11½g. ...	Ditto ditto ...	52 1 4	.....	32 9 9
325	Tuppeh Mohesvardi, Banameh Saha Nowaj Khan, Elahi Newaj Khan.	14,133 5 4½	.....	Hisya 15g. 1kr. 1kt. 6t. Ananda Mohon, Hari Mohon and Krishna Mohon Das.	Ananda Mohon Das and others.	677 2 6	.....	192 3 9
392	Pergunnah Bikrampur, taluq Brindavan Chandra Radha Kishore Sen, hisya 8a. Radha Madhav.	1,452 9 1	.....	Residue share ...	Nanda Kumar Guha .	425 6 1½	.....	150 11 6
393	Pergunnah Bikrampur, taluq Brindavan Chandra Radha Kishore Sen, hisya 8a. Raj Kishore Sen.	1,452 9 1	.....	Ditto ...	Rup Lal Raghu Nath Das and others.	554 10 2½	.....	145 8 7
534	Pergunnah Bhawal Jawar Naltaket, taluq Sridhar Hari Rati, Krishna Ram Chakraverty.	544 0 0	....	Ditto ...	Joy Chandra Chaudhury and others.	74 15 9½	.....	43 12 2½
				Hisya 1a. Banga Chandra, Har Chan Chakraverty.	Banga Chandra Chakraverty and others.	34 0 0	.....	14 5 0½
				Hisya 2a. 2kr. 1kt. Brahmya Mayi Debya.	Brahmya Mayi Debya	16 4 8	.....	14 1 1
552	Pergunnah Mobarak Ujiau, taluq Jagir Abdulla.	961 1 0½	.....	Residue share ...	Showdamini Gupta and others.	384 6 9½	.....	74 13 2
562	Shahar Chandina May Peshkosh Chandina, Maulv Abdul Ali.	1,898 10 8	.....	Ditto ...	Protap Chandra Das and others.	664 8 2	.....	170 4 0
569	Pergunnah Bikrampur, taluq Ram Gunga Bosu	684 3 0	.....	Ditto ...	Sitamani and others ...	256 9 0	... ..	95 0 0
4349	Pergunnah Patpashar, taluq Golam Hosen Chaudhuri.	930 3 11½	... ..	Ditto ...	Amirannessa Khatoon, Manager for Maulvi Abdul Hye and others.	359 1 9	.....	86 15 11
				Hisya 1½a. Najbannessa and others.	Najbannessa and others.	87 3 5	.....	8 9 10
				Hisya 3a. 2g. 1kr. 1½kg. Hamidannessa and others.	Hamidannessa Khatoon and others.	181 12 2	.....	55 11 11
5849	Pergunnah Hashara Raja Ram Chaudhuri.	823 10 1	Entire estate.	.....	Gojendra Nath Shome and others.	... ..	1 12 0	.....
6551	Pergunnah Rajnagar, taluq Debi Prosad Ghosh.	642 2 1½	.....	Residue share .	Kala Chand Shaha and others.	535 1 8½	.....	40 1 5
8434	Char Buktabali	584 0 0	Entire estate.	.....	Pran Nath Pare and others.	.... .	153 0 0	. ....
8660	Tuppeh Amirabad Estate No. 234.	760 4 1½	Ditto ...	.....	Abhaya Charan Das and Brojendra Kumar Rai Chaudhuri.	.....	72 14 3	.....:
9069	Char Fukurhati within Char Krishnapura.	519 0 0	Ditto ...	.....	Kripa Mayi Debya and others.	.....	7 2 0	.....
9083	Mouzah Golara Baluchari within Char Jalua Kamta.	752 0 0	Ditto ..	.....	A. M. Bhoogy Shaheb, Receiver.	.....	149 0 0	.....
9101	Char Tilli within Char Mirzapur.	1,187 0 0	Ditto ...	.....	Kailash Bashini and Bindhu Bashini Chaudhurani and others.	.....	299 0 0	...
9762	Pergunnah Burdakhat Char Delwarpur.	4,196 0 0	Ditto ...	.....	Joharuddin Hyder and others.	.....	1,052 0 0	... ..

Dacca Collectorate, the 8th February 1890.

L. HARE, Offg. Collector.

NOTICE is hereby given that the proprietary right of Government, as specified in the conditions of sale below to the undermentioned estate, situate in the district of Maldah, will be put up to sale at the Maldah Collectorate on 26th March 1890, corresponding with 14th Chaitra 1296 B.S.

The purchasers will be subject to the following conditions of sale :—

Conditions of Sale.

1*st*.—The estate to be sold to the highest bidder above the upset price, which will be fixed by the Collector at the time of sale. The purchaser of this estate will be considered as the proprietor of the estate, and the entire proprietary right of Government in such estate will be transferred to him, subject to the revenue fixed in perpetuity.

2*nd*.—The sale to be subject to existing leases and to the rights conferred by the settlement proceedings and by the laws in force ; and purchasers to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the Revenue authorities.

3*rd*—If the amount of purchase-money do not exceed Rs. 100, the whole amount to be paid at once.

4*th*—If the amount of purchase-money exceed Rs. 100, one-fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the fifteenth day after the sale, reckoning the day of sale as one, or, if that day be a close holiday, then by noon of the first succeeding office day, the sale is to be cancelled (the sum deposited being forfeited to Government), and the estate to be again put to sale at the risk of the defaulting purchaser, after issue of advertisement, as in the case of original sale.

Number on the district roll.	Name of estate and pergunnah.	Approximate area in acres.	Government revenue assessed
		A. R P	Rs.
98	Kismut Jot Kusturi, pergunnah Kotuali ...	62 0 12	5 0

Collector's Office, district Maldah, the 6th February 1890. POORNO CHANDRA CHATTERJEE, Dy. Collr in charge

Commissioners for making Improvements in the Port of Calcutta.

NOTICE

UNDER SECTION 69 OF ACT V (B.C.) OF 1870.

THE following packages, landed at the Jetties from the undermentioned ships, have been removed to the Commissioners' Import Warehouse, where they remain at the risk and expense of the owners. If not cleared within two months from the date stated against each item, they will be sold under section 72 of the said Act :—

Date of removal to Import Warehouse.		Number, mark and description.	Consignees.	Ships.
1890.				
Jan.	27	1 Case, 373 in a diamond, C B below	Order ...	S. S. "Electrician."
,,	27	10 Crates, G H by S	Ditto ...	Ditto.
,,	27	1 Case, J M S D in a diamond, G A & Co. outside...	Ditto ...	Ditto.
,,	27	1 Case, L O C K E	Ditto ...	Ditto.
,,	27	2 Cases, S by 208 in a diamond, J below ...	Ditto ...	Ditto.
,,	27	3 Casks, 751 in a diamond, T top	Ditto ...	Ditto.
,,	27	11 Packages, W in a double triangle, D below ...	Ditto ...	Ditto.
,,	27	1 Case, P Co. in a diamond	Ditto ...	Ditto.
,,	27	1 Parcel, Messrs. Arakie Brothers, 1, Clive Row ...	Ditto ...	Ditto.
,,	27	1 Bundle sheet iron, B and N W P S, A S S O below	Ditto ...	Ditto.
,,	27	4 Bundle nail rod iron, 1 stroke	Ditto ...	Ditto.
,,	27	30 Drums, C M D in a diamond, G A & Co. outside...	Ditto ...	Ditto.
,,	29	3 Cases, 200 in a diamond, C B & Co. outside ...	Ditto ...	S. S. "City of Canterbury."
,,	29	1 Case, B B in a diamond, J M R outside, Akyab below.	Ditto	Ditto.
,,	29	1 Case, 14 by 3797 in a diamond	Ditto ...	Ditto.
,,	29	1 Case, L O C K E	Ditto ...	Ditto.
,,	29	1 Case, 500 in a diamond, C B & Co. outside ...	Ditto ...	Ditto.
,,	29	5 Cases, M in a triangle, J S top	Ditto ...	Ditto.
,,	29	4 Casks, 272 in a diamond, N P and G outside ...	Ditto ...	Ditto.
,,	29	1 Keg, A B Rivers, or no mark	Ditto ...	Ditto.
,,	29	3 Kegs, no mark	Ditto ...	Ditto.
,,	29	20 Bales, P in diamond, C H outside	Ditto ...	Ditto.
,,	29	20 Casks, W L in a diamond, C below	Ditto ...	Ditto.
,,	29	11 Packages, W in a double triangle, D below ...	Ditto ...	Ditto.
,,	29	1 Case, 563 in a diamond, W below	Ditto ...	Ditto.
,,	29	2 Cases, W L	Ditto ...	Ditto.
,,	29	1 Case, H. S. Thomson, Esq., care of Messrs Octavius Steel & Co.	Addressed ...	Ditto.
,,	29	28 Packages, no mark	Order ...	Ditto.
,,	29	1 Bundle hoop iron, H M & Co. or no mark ...	Ditto ...	Ditto.
,,	29	4 Cases, H C in a triangle	Ditto ...	S. S. "Niobe."

Port Commrs.' Office, Calcutta, the 8th February 1890. (3527—1) G. H. SIMMONS, Vice-Chairman.

Statement of Government Promissory Notes enfaced for payment of Interest in London, under deduction of amount re-transferred to India, and outstanding in the Books of the Bank of Bengal on the 31st January 1890.

PARTICULARS.	3½ per cent. transfer loan of 1853-54.	4 PER CENT. LOANS							4½ PER CENT. LOANS				Transfer loan of 1879, seven shillings per cent. portion.	5 per cent. loan of 1856-57.	GRAND TOTAL.
		Of 1832-33.	Of 1835-36.	Of 1842-43.	Of 1854-55.	Transfer of 1865.	Reduced 4 per cent. loan of 1879.	Total.	Of 1870.	Of 1878.	Transfer loan of 1879. 4½ per cent. portion.	Total			
Balance of 15th January 1890 ...	54,700	11,29,387	25,24,900	2,48,63,200	1,05,20,900	3,95,47,000	1,99,33,900	9,85,19,287	39,500	71,48,000	11,08,75,600	11,80,63,100	1,33,800	32,200	21,68,03,087
ADD—															
Amount enfaced at Madras between 16th and 31st January 1890	.....	.....	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Amount enfaced at Bombay between 16th and 31st January 1890	.....	.....	.....	25,000	1,50,000	.....	.....	1,75,000	.....	.....	.....	.....	.....	.....	1,75,000
Amount enfaced at Calcutta between 16th and 31st January 1890	.....	.....	1,000	1,000	6,900	87.000	.....	95,900	.....	1,000	.....	1,000	.....	.....	96,900
	54,700	11,29,387	25,25,900	2,48,89,200	1,06,77,800	3,96,34,000	1,99,33,900	9,87,90,187	39,500	71,49,000	11,08,75,600	11,80,64,100	1,33,800	32,200	21,70,74,987
DEDUCT—															
Amount written off in the London registers	.....	.....	.....	43,200	6,000	1,61,500	57,200	2,67,900	.....	1,000	16,000	17,000	.....	.....	2,84,900
Balance on 31st January 1890 ...	54,700	11,29,387	25,25,900	2,48,46,000	1,06,71,800	3,94,72,500	1,98,76,700	9,85,22,287	39 500	71,48,000	11,08,59,600	11.80,47,100	1,33,800	32,200	21,67,90,087

NOTE.—From 9th June 1867 to 30th Nov. 1889—Enfaced from India 6,163 lakhs; re-transferred from London 5,325 lakhs.

,,	1st Dec. 1889	,,	15th Dec.	,,	,,	,,	,,	12	,,	,,	,,	,,	22	,,
,,	16th ,,	,,	31st ,,	,,	,,	,,	,,	9	,,	,,	,,	,,	11	,,
,,	1st Jan. 1890	,,	15th Jan. 1890	,,	,,	,,	,,	5	,,	,,	,,	,,	21	,,
,,	16th ,,	,,	,,	31st ,,	,,	,,	,,	3	,,	,,	,,	,,	3	,,
								6,192					5,382	
								5,382						
Balance against India ...								810 lakhs.						

E, BANK OF BENGAL,
Calcutta, the 5th February 1890.

(3321—1)

W. D. CRUICKSHANK,
Secretary and Treasurer.

District Charitable Society.

Statement of Receipts and Expenditure for the year ended 31st December 1889.

	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.
Balance ... ... {Central Office	666 5 0		Overdraft in Bank of Bengal on 31st December 1888	... ...	9,972 1 7
{District and other offices	1,035 11 1	1,702 0 1			
			Relief afforded.		
Subscriptions ... ... {Government	14,400 0 0		**District Committees** ... {General Fund	14,512 12 9	
{Port Commissioners	2,400 0 0		{Trust Funds as per Statement A	4,300 5 4	18,813 2 1
{Calcutta Corporation	1,200 0 0				
{Public	12,273 0 0	30,273 0 0	**Native Committee** ... {General Fund	3,031 8 0	
			{Trust Funds as per Statement A	15,090 14 3	18,122 6 3
Donations ... ... **Public**	.....	4,827 12 0			
Allowance for Establishment ... ... {Government	3,000 0 0		**Central Office** ... ... {General Fund	133 0 0	
{Trust Fund	840 0 0		{Trust Funds as per Statement A	9,812 0 0	
		3,840 0 0	{Schooling fees	675 2 0	10,620 2 0
Alms House proceeds	.....	277 2 8	**Commissioner of Police** ... Casual relief	.....	4,074 1 0
Miscellaneous Account	.....	8 6 7			
Interest on Invested Funds	.....	680 0 0	**Alms House** ... {Establishment	4,524 0 0	
Interest, etc., on Trust Funds, as per Statement A	.....	41,474 12 4	{Dieting	11,601 4 0	
Deposits and Advances	.....	2,758 14 0	{Contingencies, taxes, &c.	2,980 4 3	19,085 8 3
Government Grant for Leper Asylum Medicines	.....	100 0 0	**Leper Asylum** ... {Establishment	1,856 0 0	
Government Grant for Leper Asylum Repairs	.....	345 2 6	{Dieting	5,107 8 0	
			{Contingencies, taxes, &c.	2,011 13 0	8,975 5 0
District Offices.*					
			Charges—General.		
Donations	1,030 1 5		**Central Office** ... {Establishment, auditing fees, &c.	6,336 15 2	
Congregational Collections	4,328 7 2		{Rent and contingencies	1,009 2 3	
		5,358 8 7	{Printing and advertising	960 3 9	8,306 5 2
Overdraft in Bank of Bengal on 31st December 1889	.....	13,027 6 3	**District and Native Committees** ... ... {Establishment	2,190 11 0	
			{Contingencies	459 0 6	2,649 11 6
			Trust Funds ... ... Charges as per Statement A	.....	1,131 6 1
			Interest on Overdraft	.....	504 2 9
			Deposits and Advances	.....	2,457 11 11
			Balance ... ... {Central Office	107 4 3	
			{District and other offices	1,348 13 11	1,456 2 2
Total ...	.....	1,05,168 1 9	**Total** ...	.....	1,05,168 1 9

* These sums were received direct and retained by the District Committee and were spent by them in local relief, together with the grants from the Central Office, under the rules of the Society.

Examined and found correct,

CALCUTTA, *The 24th January* 1890.

K. MALLIKA, *Accountant.*

A. F. SIMSON, C.A., *Auditor.*

PATRICK MCGUIRE, *Secretary.*

District Charitable Society.

STATEMENT A.

Abstract Accounts of the Trust Funds for the year ended 31st December 1889.

No.	Head of Account.	Opening balance.	Receipts.	Total.	Payments.					Closing balance.	Total.
					Through Central Office.	Through District Committees.	Through the Native Committee.	Transferred to the General Fund for general purposes.	Charges.		
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1	Lady William Bentinck's Fund	155 9 6	522 10 10	678 4 4	.....	538 5 4	.....	.....	1 4 10	138 10 2	678 4 4
2	Dwarkanath Tagore's Fund	.....	4,120 0 0	4,120 0 0	1,878 0 0	234 0 0	.....	2,008 0 0	.....	.....	4,120 0 0
3	Maria English's Charity	.....	2,868 0 0	2,868 0 0	848 0 0	.....	.....	1,789 5 2	230 10 10	.....	2,868 0 0
4	Lokenath Bose's Fund	30 14 2	120 0 0	150 14 2	122 0 0	.....	.....	.....	0 4 10	28 9 4	150 14 2
5	Prince Jamiruddin's Fund	2,246 11 1	10,737 14 0	12,984 9 1	.....	3,528 0 0	7,012 0 0	.....	286 13 4†	2,177 11 9	12,984 9 1
6	Radha Madhub Banerjee's Fund	267 9 4	441 15 1	709 8 5	.....	.....	434 0 0	.....	1 3 0	274 5 5	709 8 5
7	Rama Sundari Dasi's Fund	.....	20 0 0	20 0 0	26 0 0	.....	.....	.....	0 0 10	—6 0 10	20 0 0
8	Chumutkar Krishna Ghose's Fund	45 6 0	24 0 0	69 6 0	22 0 0	.....	.....	.....	0 1 0	47 5 0	69 6 0
9	Eshan Chundra Bose's Fund	.....	24 0 0	24 0 0	.....	.....	24 0 0	.....	0 1 0	—0 1 0	24 0 0
10	Massey Baba John's Estate	.....	3,600 4 11	3,600 4 11	.....	.....	.....	3,600 4 11	.....	.....	3,600 4 11
11	Rose Ann Greenway's Fund	.....	240 0 0	240 0 0	.....	.....	.....	237 9 6	2 6 6	.....	240 0 0
12	Sassoon Fund	.....	395 0 0	395 0 0	.....	.....	.....	394 0 2	0 15 10	.....	395 0 0
13	Prosono Coomar Tagore's Fund	.....	424 0 0	424 0 0	.....	.....	.....	422 15 0	1 1 0	.....	424 0 0
14	Gopal Lal Tagore's Fund	296 6 4	440 0 0	736 6 4	.....	.....	456 0 0	.....	1 1 8	279 4 8	736 6 4
15	Cheke Fund	782 3 4	460 0 0	1,242 3 4	372 0 0	.....	.....	.....	1 2 4	869 1 0	1,242 3 4
16	Komul Lochun Bysack's Bequest	382 13 5	422 1 6	804 14 11	.....	.....	408 0 0	.....	5 5 5	39 3 6	804 14 11
17	Famine Relief Fund	690 14 6	2,440 0 0	3,130 14 6	.....	.....	1,178 0 0	1,220 0 0	6 1 8	726 12 10	3,130 14 6
18	Bhogobutty Churn Law's Fund	57 14 4	200 0 0	257 14 4	.....	.....	132 0 0	96 10 8	0 8 0	58 11 8	257 14 4
19	Ram Gopal Ghose's Fund	237 1 6	244 0 0	481 1 6	.....	.....	240 0 0	.....	0 9 10	240 7 8	481 1 6
20	Schorn Fund	.....	120 0 0	120 0 0	.....	.....	.....	119 11 2	0 4 10	.....	120 0 0
21	Albert Fund	621 5 2	788 0 0	1,409 5 2	.....	.....	793 0 0	.....	1 15 6	614 5 8	1,409 5 2
22	Kali Kissen Tagore's Fund	165 13 8	400 0 0	565 13 8	.....	.....	361 0 0	.....	1 0 0	203 13 8	565 13 8
23	Romanath Tagore's Fund	177 12 0	60 0 0	237 12 0	60 0 0	.....	.....	.....	0 2 4	177 9 8	237 12 0
24	Wedding Commemoration Fund	.....	320 0 0	320 0 0	319 0 0	.....	.....	.....	0 12 10	0 3 2	320 0 0
25	Greece Chunder Dutt's Fund	.....	200 0 0	200 0 0	.....	.....	.....	199 8 0	0 8 0	.....	200 0 0
26	Nina Forster's Fund	.....	842 8 0	842 8 0	.....	.....	.....	840 6 2	2 1 10	.....	842 8 0
27	Isabella Hennessy's Fund	.....	396 0 0	396 0 0	.....	.....	.....	395 0 2	0 15 10	.....	396 0 0
28	Gourmoni Dasi's Fund	297 5 8	240 0 0	537 5 8	.....	.....	240 0 0	.....	0 9 8	286 12 0	537 5 8
29	Ram Kanai Sen's Fund	37 7 3	28 0 0	60 7 3	.....	.....	24 0 0	.....	0 1 2	36 6 1	60 7 3
30	Kristodas Pal's Fund	751 15 7	420 0 0	1,171 15 7	.....	.....	354 0 0	.....	1 0 10	816 14 9	1,171 15 7
31	Bagala Sundari Debi's Fund	27 3 2	24 0 0	51 3 2	.....	.....	24 0 0	.....	0 8 0	27 1 2	51 3 2
32	Shurnamoi Dasi's Fund	4 9 5	24 0 0	28 9 5	.....	.....	24 0 0	.....	0 0 10	4 8 7	28 9 5
33	Cones' Fund	33 14 9	600 0 0	633 14 9	549 0 0	.....	.....	.....	.....	84 14 9	633 14 9
34	Raja Doorga Churn Law's Fund	8 12 0	360 0 0	368 12 0	120 0 0	.....	240 0 0	.....	0 14 4	7 13 8	368 12 0
35	Daby Churn Law's Fund	.....	40 0 0	40 0 0	.....	.....	.....	39 14 4	0 1 8	.....	40 0 0
36	Woomesh Chunder Mitter's Fund	.....	48 0 0	48 0 0	.....	.....	48 0 0	.....	0 2 0	—0 2 0	48 0 0
37	Mrs. Mary Cook's Fund	.....	40 0 0	40 0 0	.....	.....	.....	39 14 4	0 1 8	.....	40 0 0
38	Maharaja Kumul Krishna's Charity	232 8 0	360 0 0	592 8 0	.....	.....	345 0 0	.....	.....	247 8 0	592 8 0
39	Maharaja Sir J. M. Tagore's Charity	23 0 0	500 0 0	523 0 0	.....	.....	492 0 0	.....	.....	31 0 0	523 0 0
40	Raja Rajendra Mullick's Charity	18 0 0	900 0 0	918 0 0	.....	.....	1,188 0 0	.....	.....	—270 0 0	918 0 0
41	Sm. Kumudini Dasi's Charity	221 9 0	300 0 0	521 0 0	.....	.....	303 0 0	.....	.....	218 0 0	521 0 0
42	Native Committee's Reserve Fund	240 11 9	620 0 0*	860 11 9	.....	.....	770 14 3	.....	6 4 10	89 8 8	860 11 9
43	Mutiny Relief Fund	19 1 0	6,100 0 0	6,119 1 0	5,496 0 0	.....	.....	.....	600 0 0‡	23 1 0	6,119 1 0
	Total	8,058 14 11	41,474 12 4	49,533 11 3	9,412 0 0	4,800 5 4	15,090 14 3	11,373 3 7	1,131 6 1	7,825 14 0	49,533 11 3

* Includes Rs. 500 transferred from "Donation" account.

† With allowance to District Charitable Society at Rs. 20 per month.
‡ Allowance to District Charitable Society at Rs. 50 per month.

Examined and found correct.

CALCUTTA,
The 24th January 1890.

K. MALLIKA,
Accountant.

A. F. SIMSON, C.A.,
Auditor.

PATRICK MCGUIRE,
Secretary.

District Charitable Society.

Abstract of the Accounts of the District and Native Committees for 1889.

District Agency.	Opening balance.	Received from Central Office	Congregational collections.	Donations and sums received direct.	Total.	Relief.			Establishment.	Contingencies.	Balances remitted to the Central Office, &c.	Closing balance.	Total.
						Pensions.	Casual relief.	Schooling fees.					
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
St. John's District	51 12 9	1,455 0 0	596 2 6	98 1 0	2,201 0 3	1,200 0 0	596 1 9	204 0 0	120 0 0	0 2 0	.....	80 12 6	2,201 0 3
St. James' ,, ...	153 2 7	3,306 0 0	390 13 8	386 14 10	4,236 15 1	2,424 0 0	1,149 8 10	352 4 0	140 0 0	.....	.....	171 2 3	4,236 15 1
St. Thomas' ,, ...	13 15 3	1,287 12 0	250 12 0	445 14 1	1,998 5 4	625 8 0	1,158 6 0	30 0 0	87 0 0	0 2 0	.....	97 5 4	1,998 5 4
Old Church ,, ...	129 11 2	6,686 13 0	1,653 1 3	.....	8,469 9 5	5,885 0 0	1,596 12 0	300 0 0	379 7 0	12 4 0	.....	296 2 5	8,467 9 5
St. Paul's Mission	3 0 0	1,020 0 0	300 0 0	.....	1,323 0 0	596 0 0	705 13 9	.....	20 0 0	.....	.....	1 2 3	1,323 0 0
St. Andrew's Committee	0 5 0	.....	531 11 5	10 0 0	542 0 6	432 0 0	110 0 6	.....	.....	.....	.....	.....	542 0 6
Howrah District	0 3 11	744 0 0	615 14 3	79 3 6	1,439 5 8	916 0 0	401 5 11	.....	29 0 0	29 0 0	.....	63 15 9	1,439 5 8
Commissioner of Police	193 0 0	2,700 0 0	.....	.....	2,893 0 0	.....	2,178 13 0	.....	600 0 0	75 0 0	.....	39 3 0	2,893 0 0
Native Committee	470 8 2	19,540 8 0	.....	.....	20,011 0 2	17,597 8 0	170 14 3	354 0 0	815 4 0	342 8 6	214 0 0	516 13 5	20,011 0 2
Total ...	1,015 10 10	36,740 1 0	4,328 7 2	1,030 1 5	43,114 4 5	29,676 0 0	8,067 12 0	1,240 4 0	2,190 11 0	459 0 6	214 0 0	1,286 8 11	43,114 4 5

District Committees.

	Rs. A. P.
Pensions	12,078 8 0
Casual relief	5,718 0 9
Schooling fees...	886 4 0
Total ...	18,682 12 9

Native Committee.

	Rs. A. P.
Pensions	17,597 8 0
Casual relief	170 14 3
Schooling fees..	354 0 0
Total ...	18,122 6 3

Commissioner of Police.

	Rs. A. P.
Pecuniary relief as above	2,178 13 0
Paid by Central Office for rations, railway passes, &c.	2,118 14 0
Total ...	4,297 11 0

N.B.—In addition to the above, the Chaplain of Barrackpore received and spent a sum of Rs. 130-5-4, making a total of Rs. 18,813-2-1, relief through District Committees.

CALCUTTA,
The 23rd January 1890.

K. MALLIKA,
Accountant.

PATRICK MCGUIRE,
Secretary.

LETTERS of Administration (with copy Will annexed) of the property and credits of Edward James Jones, late of Calcutta, Deputy Superintendent of the Geological Survey of India, deceased, have been granted by the High Court, Calcutta, to G. W. F. Buckland, Esq., of No. 1, Esplanade, West, Calcutta, as the Attorney of the Executor named in the Will of the deceased. All persons having claims against the deceased are requested to submit same to the Administrator before the 31st day of March next, after which date no claims will be admitted.

J. A. APCAR, Attorney.

Calcutta, 17th January 1890. (3461-3)

NOTICE is hereby given that Mary Stephen, who obtained a decree *nisi* on the 23rd January 1890 in the High Court for dissolution of marriage against her husband S. S. Stephen, has revoked and cancelled the power-of-attorney which she executed in his favour, and that the said S. S. Stephen has no authority to act as her attorney in any matter whatsoever. Any payment of money therefore to the said S. S. Stephen on account of the said Mary Stephen will not be recognised.

GONESH CHUNDER CHUNDER, Attorney for Mary Stephen.

Calcutta, the 27th January 1890. (3494-3)

Notice.

IN continuation of notice, dated the 9th October 1889 published at page 1656, Part II of the *Calcutta Gazette* of 30th October 1889, regarding the Barque *Grosvener*, it is further notified that the said vessel, with all her masts, sails, gear, and appurtenances which may be on board her on the 19th day of April 1890, will be sold by auction to the highest bidder on Saturday, the 19th of April 1890.

The sale will be held at the Port Office, Chittagong, and will commence at 3 P.M.

Terms 25 per cent on fall of the hammer if desired by Receiver of Wrecks: the balance within a week of sale and before taking delivery. If the purchaser fails to pay the balance within seven days from date of sale, the vessel will be re-sold at his risk and expense. The vessel can be inspected at Chittagong by application to the Receiver of Wrecks.

E. GOOD, Receiver of Wrecks.

(3498—4)

In the Court of Baboo Ram Gopal Chaki, Roy Bahadur, Subordinate Judge of Backergunge.

EXECUTION CASE No. 14 OF 1890

Kashi Mani Chaudhurani, decree-holder, *versus* Mozaheruddin Mohammed Chaudhuri and others, judgment-debtors.

TO be sold the right, title, and interests of the undermentioned mortgaged property at 12 A. M. on the 19th day of February 1890 by the District Judge's Nazir, in the sale-house of the District Judge of Backergunge—

Schedule of Property.

7*a* 17½*g.* 1*kt.* and 12*bits* share of taluq Mohomed Shafi Chaudhuri, entered in the Backergunge Collectorate towji in No. 1628, pergunnah Bazoorgannadpur, and situated in Joár Ramna Bamna within station Mathá'iá and sub-registry Bhandúrá. The annual sudder jumma of the above share is Rs. 9·597 10*a.* 9*p.* 15*kt.* and 4 *dimish*, belonging to judgment-debtors Hurannessa Khatun and Manatajuddin Mohomed Chaudhuri by virtue of hebanamah and contract.

R. G. CHAKI, Sub-Judge.

(3518-1)

Stolen.

THE Government Promissory Note No. 220972 of the 4 per cent of 1865 for Rs. 500, originally standing in the name of Modhu Sudhir Kowar, and last endorsed to Kedar Nath Majumdar, the proprietor, by whom it was never endorsed to any other person. Payment of the above note and the interest thereupon have been stopped at the Public Debt Office, Bank of Bengal, and application is to be made for accrued interest and for issue of duplicates in favour of the proprietor after two years from date of last advertisement.

KEDAR NATH MAJUMDAR, Cooch Behar.

(3497-3)

Lost.

THE lower halves of the Government Promissory Notes Nos 236782 and 236783 of the 4 per cent. loan of 1865 for Rs. 500 each, originally standing in the name of the Bank of Bengal, and last endorsed to General Dumber Shum Shere Jung Bahadur Rana, the proprietor by whom it was never endorsed to any other person, having been lost, notice is hereby given that payment of the above notes and the interest thereupon have been stopped at the Public Debt Office, Bank of Bengal, Calcutta, and that application is about to be made for the issue of a duplicate in favour of the proprietor. The public are cautioned against purchasing or otherwise dealing with the abovementioned securities.

RAKHAL CHUNDRA CHATTERJEE, Secretary to the Representative of the Government of Nepal.

78, Dhurumtola Street, the 6th February 1890.

(3520-3)

Currency Notes.

THE following Currency Note of the Calcutta Circle is stated to have been destroyed, and payment of its value has been claimed by the person whose name is placed against the number; any other person claiming a right to it is warned to communicate at once with the undersigned:—

Note wholly lost or destroyed.

Register number.	Number of Note.	Value.	Name of Claimant.
		Rs.	
HS of 1890	U/56 9·840	100	Bhagwandas Khatri, Kooncha Sanjagi Ram, Lahore Gate, Delhi.

H. KEENE, Assistant Comptroller-General, in charge Paper Currency.

Paper Currency Department, 11th February 1890.

Notification.

TO be peremptorily sold pursuant to a decree and order of the Calcutta High Court, Original Civil Jurisdiction, made in suit No 285 of 1886 (wherein Nobokristo Seal is plaintiff and Rojooni Loll Bysack *alias* Rajendro Loll Bysack is defendant), and dated, respectively, the 5th of August 1886 and the 13th of July 1888, by the Registrar of the said Court in his sale-room in the Court-house, on Saturday, the 15th of March next, at the hour of 12 o'clock noon, the following properties.

Lot No. 1.—All that undivided half part or share of and in the upper-roomed brick-built messuage, tenement or dwelling-house, together with the piece or parcel of rent-free land or ground thereunto belonging, and on part whereof the same is erected and built, containing by estimation eight cottahs, be the same a little more or less, situate, lying, and being No. 29, Churruckdangah Street, Sootanooty, in the town of Calcutta, and bounded on the north by Churruckdangah Street, and on the east, west, and south by the garden belonging to the estate of the late Prosono Coomar Tagore.

Lot No. 2.—All that undivided half part or share of and in the garden and piece or parcel of land No 99, Manicktollah Road, in zillah 24-Pergunnahs, sub-district Sealdah, thana Manicktollah, being holding No 381 in Grand Division 2, Sub-division 11, Dehi Punchanmogram, containing by estimation thirteen bighas, more or less, and in respect of which the yearly rent of Rs. 27-4 is payable to the Collector of 24-Pergunnahs, and bounded on the north by the garden belonging to Benudbehary Shaw, on the south by the Manicktollah Street, on the east by the tenanted land belonging to the estate of the late Sreekristo Mullick, and on the west by the garden belonging to Gungapersaud Gangooly.

The abstract of title and the conditions of sale may be seen at the Office of the undersigned, or at the Office of Baboo Sitanauth Doss, Attorney for the plaintiff, on any day before the sale, and will be produced at the sale.

R. BELCHAMBERS, Registrar.

Calcutta, High Court, Original Side, the 24th day of January 1890. (3526-1)

Notification.

TO be peremptorily sold by the Registrar of the High Court of Judicature at Fort William in Bengal, in its Ordinary Original Civil Jurisdiction, on Saturday, the 15th day of February 1890, at the hour of 12 o'clock at noon, pursuant to a decree dated the 25th of March 1887, and the orders dated, respectively, the 18th February 1888 and the 14th of January 1889, of the said Court, made in suit No 417 of 1885 (wherein Kumar Nilkrishna Deb and another are the plaintiffs and Sreemutty Unnopoorna Dabee is the defendant), the following property belonging to the said defendant Sreemutty Unnopoorna Dabee:—

All that brick-built messuage, tenement or dwelling-house, together with the piece or parcel of land thereunto belonging, and on part of which the same is erected and built, containing by estimation 6 cottahs, be the same a little more or less, situate at and being No. 32, Nimtollah Ghat Street, formerly No. 46, Nimtollah Ghat Street, in the town of Calcutta, and bounded on the north partly by the land of Gudadhur Gangooly and partly by Nimtollah Ghat Street; on the south by the land of Kally Bysack; on the east by a narrow lane leading out to Nimtollah Street which separates these premises from the house of Nilmony Banerjee; and on the west by the Government drain.

The abstract of title and conditions of sale may be seen at the Office of the Registrar, High Court, Original Jurisdiction, and at the Office of Messrs. Swinhoe and Chunder, Attorneys for the plaintiffs, any day before the sale and will be produced at the sale.

R. BELCHAMBERS, Registrar.

Swinhoe and Chunder, plaintiffs' Attorneys.

Calcutta, High Court, Original Jurisdiction, the 8th February 1890. (3530—1)

In the Court of Baboo Shamboo Chandra Nag, Subordinate Judge of Hooghly, Third Court.

RENT EXECUTION CASE No. 58 of 1889.

Nabo Kristo Mookerjee decree-holder, *versus* Dyal Nath Bhattacharjee and others, judgment-debtors.

THE advertised property of the above judgment-debtors will be put up to sale in the highest bid on the 10th day of March 1890, at 12 o'clock noon, by the Nazir of the District Judge's Court, Hooghly, in the sale-room of the Court-house:—

Schedule of Property to be sold.

Two annas thirteen gundas one cowree one krantee share of lot Bundeipore, bearing towji No 77 of the Collectorate of Hooghly, situated in pergunnah Bundeipore, zillah Hooghly, sudder jumma of the whole 16 annas being Rs. 14,782-4-2, the upset value given by the decree-holder is Rs. (5,000), five thousand.

SHAMBOO CHANDRA NAG, Subordinate Judge.

Hooghly, the 7th February 1890. (3529—3)

Notice.

In the First Court of the Subordinate Judge of Midnapur.

EXECUTION CASE No. 164 OF 1889.

Sashi Lall Kur, decree-holder, *versus* Broja Das Dutta, judgment-debtor.

THE undermentioned property will be sold by public auction at the Court-house of the District Judge of Midnapur on Saturday, the 15th February 1890, at 12 o'clock, in execution of the decree passed by the Subordinate Judge of Midnapur for the realization of Rs. 7,319-3-0 obtained by a mortgage decree due from the debtor to the decree-holder:—

Schedule of property to be sold.

Lot I. Ten annas thirteen gundas two cowris and two crantis share of Mahul Ramchunderpur with its mouzas, within the police station of Shobong and sub-registry office Pingla, pergunnah Moyna Chour, bearing towji No. 1307, present towji No. 1280, and A Register No. 2466; Government revenue payable is Rs. 1,300-13-9, and the Government revenue of which ten annas thirteen gundas two cowris and two crantis share is Rs. 867-3-6.

DWARKANATH BHUTTACHARJEA, Subordinate Judge, First Court.

(3533—1)

Notice.

In the First Court of the Subordinate Judge of Midnapur.

EXECUTION CASE No. 10 OF 1890.

Bhuban Chandra Banerjea and Srimati Sukhoda Debi, decree-holders, *versus* Sridhar Charan Nandi, judgment-debtor.

THE undermentioned properties of the judgment-debtor will be sold in the above case by the Nazir of the District Judge's Court of Midnapur, in his sale office on Saturday, the 15th March 1890, at the hour of 12 A.M., for the realization of mortgage decree amounting to Rs. 5 357-1-3 by sale of properties Nos. 1 and 2, and Rs. 5,085-1-3 by sale of property No. 3.

Schedule of properties to be sold.

Lot II.—Two annas share out of six annas share of mehal Khirai, situate in pergunnah Moyna within the police station of Shobong and sub-registry office of Raj Ballabh, the present towji No. of which is 889 and A. Registry No. 1684, and the annual sudder jama of which two annas is Rs. 7 14 5*a* 6*g*. 2*c* 2*cr*.

Lot III.—Four annas share out of six annas share of mehal Khirai, situate in pergunnah Moyna within the police station of Shobong and sub-registry office of Raj Ballabh, the present towji No. of which is 889 and A Registry No. 1684, and the Government revenue of which four annas is Rs. 1,489-4.

DWARKANATH BHUTTACHARJEA, Subordinate Judge, First Court. (3534—1)

Notice.

WANTED three Peshkars or Inspectors, on salaries of Rs. 30 per mensem, for settlement work in the Sonthal Pergunnahs. None need apply who have not a knowledge of plane-table, of compass-surveying and experience in settlement work. Applications with copies of certificates to be sent to the undersigned at once.

J. A. CRAVEN, Settlement Officer.

Damp Camp Deoghur, the 10th February 1890.

Notice.

WANTED a Record-keeper for the Maldah Collectorate on a salary of Rs. 40 rising to Rs. 60 by biennial increments of Rs. 2.

No one need apply who has not had previous experience in a similar post. The selected candidate is to furnish security to the extent of Rs. 500, either in Government Promissory Notes or in cash.

Applications will be received up to 25th February next.

POORNO CHUNDRA CHATTERJEE, Deputy Collector in charge

Ramghur Tea Company, Limited.

THE Ordinary General Meeting of the Shareholders of this Company will be held in the Company's Registered Office, No. 16, Strand, on Friday, the 14th February, at noon.

MACKINNON, MACKENZIE & Co., Agents.

(3517—1)

Goosery Cotton Mills Company, "Limited"

THE Fifty-third Half-yearly General Meeting of Shareholders will be held at the Company's Registered Office, No. 101, Clive Street, on Monday, the 17th instant, at 12 noon, to receive the Directors' Report and Accounts for the half-year ended 31st December 1889, the declaration of the half yearly dividend, and for such other business as may be brought forward.

The Share Register will be closed from this date to the 17th instant.

By order of the Directors,

D. McL. MORRISON, Secretary.

Calcutta, the 5th February 1890. (3516—1)

Dehra-Doon Tea Company, Limited.

NOTICE is hereby given that the Fifty-third Half-yearly Ordinary General Meeting of the Shareholders will be held at the Mussoorie Bank, Dehra North-Western Provinces, on the 28th February 1890, at noon.

A. J. C. SEYMOUR, Offg. Secretary.

Dehra Doon, the 7th February 1890. (3528—1)

Statement of the Affairs of the Bank of Bengal for the week ending 4th February 1890.

LIABILITIES.	Rs.	A.	P.	ASSETS.	Rs	A.	P.
Capital paid up	2,00,00,000	0	0	Government Securities	15,24,485	0	0
Reserve Fund	58,00,000	0	0	Other authorized Investments	76,59,946	0	0
Public Deposits at Head Office ... .. Rs. 92,71,700 8 1				Loans on Government and other authorized Securities	1,54 62,515	1	8
Ditto ditto at Branches ,, 97,80,004 9 10	1,90 51,705	1	11	Accounts of credit on ditto ditto	1 06 39,650	14	9
Other Deposits at Head Office and Branches	3,01,01,522	12	11	Bills discounted and purchased	2,03 13,013	8	5
Bank Post Bills, &c.	4,80,332	11	9	Balances with other Banks	10,00,378	15	4
Sundries	9,63,627	5	4	Bullion	2,43,492	4	0
				Dead Stock	12,28 371	9	2
				Stamps	13 692	1	0
				Sundries	3,09,305	11	6
					5,83,23,851	1	10
				Cash and Currency Notes at Head Office Rs. 62,69,320 4 8			
				Cash and Currency Notes at Branches ... . ,, 1,17,34,016 9 5	1,80,03,336 14	1	
Rupees ...	7 63 97,187	15	11	Rupees ..	7,63,97,187	15	11

BANK OF BENGAL
Calcutta, 6th February 1890.

R. L. BIRD, Chief Accty.
Rate for Demand Loans 9 per cent.
Percentage 35·5.

By order of the Directors.
W. D. CRUICKSHANK,
Secy. and Treasurer
(3519—1)

Notices of deaths sent to the Administrator-General of Bengal under Section 64 of Act II of 1874.

Name of deceased.	Place of death	Date of death	By whom and when death reported.	REMARKS.
J. Rogers	Giuliea Hospital of the Bengal Nagpore Railway.	10th Dec. 1889 ...	Deputy Commissioner of Singbhoom, on the 20th December 1889.	Intestate. Assets not known. No application for administration.
Mrs. Sarah Valentine Chapman.	Kuma n	30th ,, ,, ..	Assistant Commissioner, Naini Tal, on the 11th January 1890.	Intestate. No property left Next-of-kin Mrs. Harris and other children
J. H. Young, Engineer, S S. *Marwari*.	On the river in Assam was drowned.	18th Nov. ,, ..	Officiating Judge, Assam Valley District, on the 9th January 1890.	Intestate. Assets about Rs. 70-14. Next-of-kin father, in Glasgow.
Epphan Seistan	Rui Ghate, district Saharunpur.	3rd Sept. ,, .	District Judge of Agra, on the 5th January 1890.	Will left. F. Seistan, nephew and adopted son, has applied for letters of administration to the Court of the District Judge, Agra. Citation issued. Assets Rs. 14,490.
Henry LeMesurier	Darjeeling	28th Dec. ,, ..	Officiating District Judge of Dinagepore, on the 22nd January 1890.	Intestate. Assets about Rs. 264-13-6. Father in Canada. Nearest relative in India Mr. G. G. LeMesurier, Poomong, Darjeeling.
Dr. J. B. Briscbe	Ditto	12th Jan. 1890 ...	Officiating District Judge of Dinagepore, on the 23rd January 1890.	Will left. Assets about Rs. 9,000. Widow sole executrix under the will has applied for probate to the Court of the Deputy Commissioner of Darjeeling.
T. Gordon Stoker, late Manager of the Badderpore Tea Estate, achar.	Kingston, Ireland ...	7th Dec. 1889 ...	Deputy Commissioner of Cachar, on the 21st January 1890.	Will left in England. Property of small value in the possession of Mr. W. L. Clark, Cachar. No application for administration
Arthur Arnel, Driver, North-Western Railway.	Sibi	13th ,, ,, ...	Political Agent, Thal Chotiah, on the 27th January 1890.	Intestate. Property not known. No application for administration.

L. P. D. BROUGHTON,
Administrator-General of Bengal.

1, COUNCIL HOUSE STREET; CALCUTTA, *The 7th February* 1890.

Oudh Forest Department.

BAHRAMGHAT DEPOT.

ON THE OUDH AND ROHILKHAND RAILWAY.

FROM this date the prices of sál beams and scantlings supplied from this depôt will be as follows:—

BEAMS.—21 feet length, at Rs. 2-10 per cubic foot.
23 ,, ,, 2-12 ,,
23 ,, ,, 2-14 ,,
24 ,, ,, 3 ,,

Above the length given two annas per foot run will be charged. Any inches over the foot will be charged as a foot.

SCANTLINGS—From 12 to 20 feet, at Rs. 2-8 per c. ft.
Under 12 and over 7 ,, 2-4 ,,
Under 7 feet ,, 2 ,,

The above prices are for ordinary building purposes For *Planking Sleepers*, &c., special rates will be fixed by agreement.

The Department will still take orders for buildings all over at Rs. 2-4 per cubic foot, provided the scantlings are taken in fair proportion.

Second and Third Class Timber will be sold and price fixed by agreement.

Auction Sales will be held from time to time to clear off stock.

For further particulars apply to the Officer in charge.

By order of the Conservator of Forests, N. W P. and Oudh, Oudh Circle.

KANHYA LAL,
Sub-Assistant Conservator of Forests,
Bahramghat Division.

Barhamghat, the 1st April 1886.

Government Cinchona Febrifuge.

THIS preparation is an efficient substitute for Quinine and can be purchased by Government officers for public and charitable purposes, and by any one taking *twenty pounds* at a time from the Superintendent, Botanic Garden, Calcutta, *for cash only*, at the following rates:—per four ounce tin, *Rs.* 3-14; per eight ounce tin, *Rs.* 7-4; per pound tin, *Rs.* 14. The general public can be supplied by the Superintendent, Botanic Garden, *for cash only*, at the undernoted rates: per four ounce tin, *Rs.* 4-14; per eight ounce tin, *Rs.* 9-4; per pound tin, Rs 17-8. This medicine is also sold by the principal European and Native druggists in Calcutta. Postage four annas per 4 oz tin, eight annas per 8 oz. tin, and twelve annas per pound tin in addition to the foregoing rates.

Treasure Trove.

IT is hereby notified, under section 5 of the Indian Treasure Trove Act (VI of 1878), that on or about the 20th April 1889, the undermentioned articles, valued in the aggregate at Rs. 100, were found by Parai Suppan, son of Kasumadan, and Parai Karuppan, son of Suppan, buried in a wet field No. 110C, belonging to one Kuppusami Aiyar of Bramadesam village in Ambasamudram taluq, Tinnevelly district, in the Presidency of Madras :—

Description of articles.	Approximate value.
	Rs.
Four copper idols	100

All persons claiming the said treasure or any part thereof are hereby required to appear personally or by duly authorized agents before the Collector of Tinnevelly, at his office at Tinnevelly, on the 16th day of June 1890, in order to the matter being enquired into and determined in accordance with the provisions of the Act.

J. H. A. TREMENHEERE, Acting Collector.

Road Cess Notification.

DISTRICT BALASORE.

IT is hereby notified for general information that, under section 46 of Act III (B.C.) of 1885, the District Board of Balasore have, by a resolution of their meeting held on the 1st February 1890, determined to levy road cess for the ensuing cess year 1890-91 at the maximum rate of six pies in the rupee on the annual value of lands.

R. CORNISH, Chairman, District Board, Balasore.

Road Cess Notifiction.

DISTRICT CHITTAGONG.

IT is hereby notified for general information that, under section 46 of Act III (B.C.) of 1885, the District Board of Chittagong have determined that the road cess for the next year 1890-91 should be levied at the maximum rate, viz., one-half anna on each rupee of the annual value of lands.

C. P. CASPERSZ, Chairman.

Chittagong District Board's Office, the 31st January 1890.

Road Cess Notification.

IT is hereby notified for general information that, under section 46 of the Bengal Local Self-Government Act, No. III (B.C.) of 1885, the District Board of Purneah, by a resolution of their meeting of the 3rd February 1890, have determined to levy road cess for the year 1890-91 at the full rate, *i.e.*, 2 pice per rupee on the annual value of land, &c.

SURENDRA NATH MOZUMDAR, Vice-Chairman, District Board.

Purneah District Board's Office, the 5th February 1890.

Notice.

IT is hereby notified for general information that the District Board of Mymensingh has, at a Special Meeting held on the 8th ultimo, determined, under section 46 of the Bengal Local Self-Government Act III of 1885, the road cess in the district to be levied during the ensuing year 1890-91 at the maximum rate of one-half anna per rupee, on the annual value of lands and on the annual net profits from the mines, quarries, tramways, railways and other immoveable property.

R. C. DUTT, Chairman.

Mymensingh District Board's Office, the 8th February 1890.

Notification.

THE Zemindari Dâk Tax in the district of Sarun, for the year 1890-91, is fixed at the rate of 12 annas per cent. per annum on the sudder jumma of estates paying a revenue amounting to Rs. 50 and over.

The amount due for each estate is payable in two instalments—the first being due on the 28th March 1890, and the second on the 28th September 1890.

B. G. GEIDT, For Magistrate.

Notice.

MR. R. L. BISS, Chief Accountant and Deputy Secretary, having retired from the Bank's service, the Directors have been pleased to make the following change in the establishment :—

Mr. F. T. Lewis, Superintendent, Public Debt Office, to officiate as Chief Accountant and Deputy Secretary.

By order of the Directors,

W. D. CRUICKSHANK,
(3535—1) Secretary and Treasurer.

Administrator-General's Office.

NOTICE.

ADMITTED claims against the undermentioned estates are payable on Tuesday and Friday as usual—

ESTATES.	Claims or dividends.	Rate of dividend per rupee.
* Egerton, W. H., late Assistant-Comptroller of Burma.	Claims in full.	
Gilbanks, J. C., late of Rangoon in Burmah, Barrister-at-Law.	1st dividend at 6 annas 5·85 pie.	
Taylor, John, late an Insurance Agent, carrying on business at No. 19, Radha Bazar.	1st dividend at 3 annas 10·25 pie.	

N. B.—The surplus of the estate marked * is carried over to the account for the persons interested, and no other claims against the estate can be admitted. Persons presenting receipts for payment are requested at the same time to produce the registry certificates which have been granted to them from this office.

L. P. D. BROUGHTON, Administrator-General.
Calcutta, the 10th February 1890. (3531—1)

SEALED tenders will be received by the undersigned for the undermentioned works up to 3 P.M., on Saturday, the 15th February 1890 —

Description of works or supplies of materials.	Value of works or materials to be supplied.	Names of roads.	Date of commencement of works or deliveries of materials.	Date of completion of works or deliveries of materials.	Amount of earnest money to accompany each tender in currency notes.	Deposit money required to be paid by successful tenderers.
	Rs.		1890.	1890.	Rs.	Rs.
90,000 c. ft. metal of half vitrified brick jhama.	8,850	Kishnaghur and Buggoola road.	20th February.	31st May	200	885
40,000 c. ft. metal of half vitrified brick jhama.	3,800	Ranaghat and Santipore road.	Ditto ..	Ditto ...	100	380
20,000 c. ft. metal of half vitrified brick jhama.	2,100	Khoksa Railway station to Khoksa Bazar road.	Ditto ...	Ditto ...	100	210

1. Prices of materials to be supplied will be payable after the expiration of the current year.

2. The undersigned does not bind himself to accept the lowest or any tender.

3. Thirty thousand cubic feet of the metal required for the Kishnaghur and Buggoola road to be of pugged clay.

4. All metal to be broken and stacked on the roads in accordance with the standard specification for local works, Presidency Division.

5. For further particulars apply to the office of the undersigned.

DWARKA NATH SARKAR, District Engineer, Nuddea.

Kishnaghur, District Engineer's Office, the 3rd February 1890. (3523—1)

NOTICE is hereby given that Mr. George Aitken Ormiston has been admitted a partner in our firm as from 1st January last.

MACKNIGHT, ANDERSON & Co.

Calcutta, 10th February 1890. (3524—1)

TARA PRASANNA GUHA, B.L., intends to apply for enrolment as a Vakeel of the High Court.

(3496—4)

INSOLVENT NOTICES.

In the Court for the Relief of Insolvent Debtors at Calcutta.

In the matter of BHUGWANJEE CURSONJEE, an insolvent.

On Thursday, the 2nd day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday, the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

Insolvent in person. (3504—2)

In the matter of SOORENDRO NATH SEN, an insolvent.

On Thursday, the 2nd day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday, the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

E. J. Fink, Attorney. (3505—2)

In the matter of GOPEE KANTO SEN, an insolvent.

On Friday, the 10th day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday, the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

M. M. Chatterjee, Attorney. (3506—2)

In the matter of LEONTIUS BRIDGNELL NYSS, an insolvent.

On Monday, the 6th day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday, the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

Insolvent in person. (3507—2)

In the matter of LEOZANDER and RAOUL QUILLET, insolvents.

On Saturday, the 11th day of January last, it was ordered that the matters of the petition of the said insolvents be heard on Saturday, the 1st day of March next, and that the said insolvents do then attend to be examined before the said Court.

Dignam, Robinson and Sparkes, Attorneys. (3508-2)

In the matter of THOMAS RICHARDSON FRENCH, an insolvent.

On Wednesday, the 29th day of January last, it was ordered that the matters of the petition of the said insolvent be heard on Saturday the 1st day of March next, and that the said insolvent do then attend to be examined before the said Court.

C. G. Lewis, Attorney. (3509—2)

Chief Clerk's Office, the 4th February 1890.

In the matter of BHUGUN CHUNDER COONDOO, an insolvent.

On Saturday, the 2nd day of March last, by an order of this Court, the said insolvent was adjudged entitled to his personal discharge under the Act XI Vic., Chapter XXI as to all persons named in his schedule as creditors or claiming to be creditors respectively.

Insolvent in person. (3536—1)

In the matter of MADHOOSOODUN SHAW, an insolvent.

On Saturday, the 11th day of January, last by an order of this Court, the said insolvent was adjudged entitled to his personal discharge under the Act XI Vic., Chapter XXI as to all persons named in his schedule as creditors or claiming to be creditors respectively.

K. K. Goho, Attorney. (3537—1)

In the matter of BUNSIDHUR SINGHANIA, lately carrying on business as piece-goods dealer and commission agent at No. 68, Cotton Street, in the town of Calcutta, under the name, style and firm of KRIPARAM SOOKDYAL, an insolvent.

On Wednesday, the 15th day of January last, it was, on the petition of Jumna Dhur, Joogulkissore, creditors of the said insolvent, adjudged that the said Bunsidhur Singhania hath committed an act of insolvency, under the provisions of the Act XI Vic., Chapter XXI, and by another order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

E. J. Fink, Attorney. (3538—2)

In the matter of SUJUN COOMAR AND BUNGSEEDHUR of No 90, Cross Street, in the Town of Calcutta, lately trading in co-partnership as merchants and agents, under the style and firm of Himutram Sujun Coomar, insolvents.

On Monday, the 27th day of January last, it was, on the petition of Luchme Chand, a creditor of the said insolvents, adjudged that the said Sujun Coomar and Bungseedhur have committed an act of insolvency under the provisions of the Act XI Vic., Chapter XXI, and by another order of the same date the estate and effects of the said insolvents were vested in the Official Assignee.

C. F. Pittar, Attorney. (3539—2)

In the matter of THOMAS BROWNING COOKSON, an insolvent.

On Saturday, the 1st day of February instant, an account of the receipts and disbursements of the Official Assignee, from the 10th day of February 1888 to the 29th day of January last, was filed in the office of the Chief Clerk, and it was ordered that Saturday, the 1st day of March next, be appointed for the further hearing of this matter for the purpose of making a dividend.

☞ Any creditor or other person interested who may intend to establish or oppose any claim upon the estate of the said insolvent may attend and be heard, having given notice to the Chief Clerk three clear days before the day of hearing.

A. B. Miller, Official Assignee. (3540—1)

In the matter of EDWARD JOAKIM GRACIES, an insolvent.

On Saturday, the 1st day of February instant, it was ordered that the Assignee do pay and divide the sum of Rs. 252-13-5 to and amongst all the creditors upon the estate of the said insolvent as a dividend at the rate of Rs. 43 per cent. upon such of the debts as are admitted in the schedule of the said insolvent, and such claims as shall be proved or substantiated to the satisfaction of the said Assignee in proportion to their several debts, with leave to the Official Assignee to apply to this Court from time to time for directions respecting any debts or any other matter or thing relating thereto.

A. B. Miller, Official Assignee. (3541—1)

In the matter of CARAPIET MARTYROSE ARATHOON, an insolvent.

On Saturday, the 1st day of February instant, it was ordered that the Assignee do pay and divide the sum of Rs. 422-2-8 to and amongst all the creditors upon the estate of the said insolvent as a dividend at the rate of 10 annas per cent. upon such of the debts as are admitted in the schedule of the said insolvent, and such claims as shall be proved or substantiated to the satisfaction of the said Assignee in proportion to their several debts, with leave to the Official Assignee to apply to this Court from time to time for directions respecting any debts or any other matter or thing relating thereto.

A. B. Miller, Official Assignee. (3542—1)

Chief Clerk's Office, the 11th day of February 1890.

In the Court of the District Judge at Patna.

In the matter of the petition of Sheo Din Sahu, insolvent.

NOTICE is hereby given that Sheo Din Sahu of Dinapore Shahzadpore, pergunnah Phulwari, district Patna, has been declared insolvent, and that the Nazir of this Court has been appointed Receiver of his property under the order of this Court, dated the 2nd August 1889. Persons having claims against the insolvent are required to prove them in this Court on the 28th February 1890, which is fixed for framing the schedule.

J. TWEEDIE, Offg District Judge.

Bankipore, the 31st January 1890. (3499—1)

POSTAL NOTICES.

Unclaimed Letters held in the Calcutta General Post Office on 11th February 1890.

Ainslie, J. H.	Kustermann, S. & Co.
Ashmore, W, C.	McNutty, J. H.
Butler, Darley & Co.	Simpson, G. T.
Cohen, A. M.	Watson, W.
Glyn, C.	

Letters marked Care of "Post Office."

Ardesher, C,
Babonau, E. Hugh,
Baldwin, W. H.
Baragerey, L.
Barker, F. W.
Baxter, Mrs.
Belitski, R.
Berkeley, C. M.
Boland, J.
Brown, W.
Bery, Adolph.
Broomsgrove, F.
Brunton, Mrs. J.
Carbery, Lady.
Chatterton, J.
Close, H.
Comar, Mrs. A.
Cooper, W.
Courage, R.
Davis, Mrs. G.
DePalma, Urbans.
Dickson, Mrs. E.
Douglas, G. P. H.
Drakeford, A.
Duclere, G. P.
Dunlo, Viscount.
Dymond, G. F.
Elliott, K.
Filleul Revd., S. E. V.
Fisk, F. M.
Francis, E. S. L.
Flack, F. F.
Flaherty, O. H.
Fletcher, Neil.
Forshaw, H.
Fraiser, H. C.
Fraiser, Miss F.
Francis, A. M.
Gallwey, C. H.
Gellett, Cecil S.
Glover, W. E.
Godwin, George.
Green, W. W.
Gantzman, Charles.
Hamilton, C. J.
Hamilton, J. R.
Handcock, J. G.
Hunter, H. C.
Hardy, Mrs. M.
Hawksworth, Mrs.
Henderson, W. H.
Hewett, F. J.
Hilton, R. W.
Horus, Miss M. L.
Jackson, T.
Johannessen, O. C.
Keane, J. J.
Kennard, F.
Keogh, Mrs. M. A.
Klaymer, Mr.
Lach, R.
Lamb, E. G.
Langer, J. O.
Lindeman, L. K.
Linton, C. E.
Livesey, Thomas.
Livewright, R.
Lloyd, Willis.
Long, W.
MacMaster, Donald.
Mackenzie, J.
Mann, E. H.
Major, A.
Manual, A. M.
Matthews, J. R.
Mathewson, F.
Maxwell, Sir, J. S.
May, J. J.
Mayes, W. H.
McAdoo, Mr.
McKenzie, Mrs. D.
McNair, Miss.
McSmith, D.
Mifsud George.
Morshead, L.
Murphy, John.
Newby, C. R. A.
Ogden, J.
O'Mealy, Capt. D'Oyly.
Penn, Mrs.
Platts, Mrs. S. K.
Powell, F.
Prenter, Miss.
Reunrick, F. B. M.
Rennard, J. R.
Robinson, G.
Rosenstern, Otto.
Roskell, Richard.
Rubie, Phil C.
Sano, T.
Searle, F. W.
Sheumon, John.
Shrewsbury, Miss.
Shworth, T. K.
Sisam, Rev. W. B.
Skinner, R. H.
Smith, M. O.
Smith, W.
Smith, Mrs. Thomas.
Taylor, C.
Thomas, G. T.
Thomson, Captain W. A.
Thompson and Co.
Thompson, G.
Uphill, T.
Ursitc, Johan.
Waddell, Alex.
Walter, F.
Walter, Amherst.
Webster, Mrs.

Registered Letters.

Broomsgrove, F.
Edwards, C.
Guiseppe, Celestini.
James, L. E.
MacLeod, D. J.
Marsland, W.
Smith, M. Oswald.

Unclaimed Letters held in the Barrackpore Post Office on the 10th February 1890.

Baker, E.
Balfour, H. T.
Burst, G. H.
Bruce, A.
Chutterberg, Col. T.
Chadburn, Mrs. J. E.
Dubery, E.
Ferguson, H. F.
Harding, H. R.
Lloyd, W.
Mertan, C. W.
Palore, L.
Thompson, Jas.

E. HUTTON,
Presidency Postmaster, Calcutta.

Mails for	Date of closing at Calcutta.	Route by which despatched.
	1890.	
Egypt, Europe, America, Cape Colonies through United Kingdom.	18th Feb. ...	Per P. & O. steamer from Bombay.
Ditto (book-post and pattern packets).	17th „ ...	Ditto.
Ceylon, Straits Settlements, Netherlands India, Labuan, Bankok (Siam), Philippine Islands, China and Japan.	24th „ ...	Ditto.
Australia, New Zealand, and Tasmania.	24th „ ...	Ditto.
Madras, Pondicherry, Ceylon, Batavia, Singapore and China.	20th „ ...	Per French steamer *Niemen*.
Madras and Colombo ...	19th „ ...	Per P. & O. steamer *Peshawur*.
Straits, China and Japan ...	18th „ ...	Per str. *A. Apcar*.
Rangoon and Moulmein ...	12th „ ...	Ditto *Madura*.
Ditto ditto ...	14th „ ...	Ditto *Bhundara*.
Akyab, Kyaukpyu, Sandoway and Rangoon.	12th „ ...	Ditto *Kistna*.
Mauritius	13th „ ...	Ditto *Wardha*.

N.B.—The letter-box for inland articles (including articles for Burma and Port Blair and for Ceylon by land route) will be cleared for the last time for articles without the late-fee at 7 P.M. precisely, after which hour inland letters and papers fully prepaid and bearing an extra postage stamp of half-anna will be received up to 7-30 P.M.

On the day of despatch of the Mail for Europe, the letter-box for foreign articles will be cleared for the last time for articles without the late-fee at 8-30 P.M., and late letters and papers will be received up to 9 P.M. On other days the letter-box for foreign articles will be cleared for the last time for articles without the late-fee at 7 P.M., and foreign letters and papers fully prepaid, bearing an extra stamp of four annas, will be received up to 7-30 P.M. for despatch by any Foreign Mails despatched the same night.

E. HUTTON, Presidency Postmaster.
General Post Office, the 11th February 1890.

Nuddea Rivers.

Report showing the least depths of water for the week ending Friday, the 7th February 1890.

Name of river.	Reach of river.	Least depth of water soundings.	Remarks.
		Ft. In.	
Bhagirati.	Entrance from Ganges ...	0 6	At mouth entrance practically closed.
	Thence to Nurpur	0 9	Dhopipara.
	From Nurpur to Jungipur ...	1 0	Bangabari.
	„ Jungipur to Berhampur	1 0	Kesadanga.
	„ Berhampur to Cutwa ...	1 6	Harinathpore.
	„ Cutwa to Nuddea ...	2 3	Nidoy.
Bhyrub-Jelinghi.	Entrance from Ganges ...	6 0	
	Thence to Akriganj	5 6	
	Akriganj to junction of the Bhyrub and Jelinghi ...	4 0	Chukjama.
	Thence to Patkabari	5 0	Amtola.
	Patkabari to Nuddea	3 9	Kalinagur.
Matabanga.	Entrance from Ganges ...	1 6	
	Thence to Chnypara ...	0 10	Sircarpara.
	From Chnypara to Shikarpur	0 6	Pragpore.
	„ Shikarpur to Boalia ...	0 6	Shampore.
	„ Boalia to Chuadanga ...	2 6	Simlmari.
	„ Chuadanga to Kissenganj and Hanskhali...	2 3	Bastupore.

Gauge Readings.

	Locality.	Date.	Hour.	Height above zero.	Height above mean sea level.	Remarks.
			A. M.	Feet.	Feet.	
Ganges.	Sahebganj ...	8-2-90	6	1·33	66·07	Below zero.
	Rampore Boalia	8-2-90	12	0·84	42·84	
	Entrance of Bhagirati ...	8-2-90	7	2·00	47·31	
	Entrance of Bhyrub-Jelinghi ..	8-2-90	...	7·08	45·44	
	Entrance of Matabanga ...	8-2-90	...	2·50	.....	
Bhagirati...	Berhampur ...	10-2-90	12	2·20	35·99	
Jelinghi ...	Kishnaghur ...	7-2-90	...	3·50	12·39	
	Saroopgunge ...	8-2-90	6	3·16	7·46	
Matabanga	Hanskhali ...	7-2-90	...	2·50	13·35	

PURNA CHANDRA BOSE,
For Exe. Engr., Nuddea Rivers Division.
Berhampore, the 10th February 1890.

AT the Meteorological Office, No. 5, Russell Street, the following official publications:—

Meteorological Report of		1867	...	Rs. 0	12	per copy.
Ditto	ditto	1868	...	„ 1	8	„
Ditto	ditto	1869	...	„ 2	4	„
Ditto	ditto	1870	...	„ 2	6	„
Ditto	ditto	1871	...	„ 2	8	„
Ditto	ditto	1872	...	„ 3	0	„
Ditto	ditto	1873	...	„ 3	0	„
Ditto	ditto	1874	...	„ 3	0	„
Administration Report of		1870-71	...	„ 0	4	„
Ditto	ditto	1871-72	...	„ 0	4	„
Ditto	ditto	1872-73	...	„ 0	4	„
Ditto	ditto	1873-74	...	„ 0	4	„
Ditto	ditto	1874-75	...	„ 0	4	„
A table of the average monthly and annual rainfall at 98 Stations in Northern India			...	„ 0	4	„
Report of the Midnapore and Burdwan cyclone of the 15th and 16th October 1874			...	„ 2	8	„

The above are also to be obtained at the same prices at Messrs. Thacker, Spink & Co., No. 5, Government Place.

JOHN ELIOT, M.A., *Meteorological Reporter to the Govt. of Bengal.*

CALCUTTA, the 26th August 1875.

THE following Reports of the Bengal Meteorological Department, issued by orders by the Government of Bengal, can be supplied to the public at the prices annexed:—

1st.—Bay of Bengal Daily Report giving observation taken at 20 stations on or near the coast of the Bay, with a chart and summary. This is published in connection with the Calcutta Storm Signal Service. The report giving 10 A.M. observations of the day is distributed by peon in Calcutta after 4 P.M. Price to subscribers in Calcutta, Rs. 2 per mensem.

2nd.—Bengal Daily Report containing observations taken at 37 meteorological stations, and transmitted to Calcutta by weather telegrams, with a brief summary of the weather in Bengal during the preceding 24 hours. The report giving the 10 A.M. observations of each day is printed in time for the evening mail. This report for the present will only be published during the south-west monsoon, *i.e.*, from May 15th to November 15th. Price Rs. 2-8 per mensem, including postage.

3rd.—A Weekly and Monthly Statement of Meteorological Observations taken at 44 observing stations, and of rainfall recorded at 245 sub-divisional stations together with summaries of the more important features of the meteorology of the past week or month of the province, and of the distribution of the rainfall and its variation from the normal. Price of the Weekly Report including postage, Rs. 6 per annum, payable in advance and of the Monthly Summary Report, Rs. 2 per annum, payable in advance.

Subscriptions payable to the Meteorological Reporter to the Government of Bengal for the Bay of Bengal, Daily Report, and to the Accountant and Treasurer Bengal Secretariat, for the other reports.

ALEX. PEDLER,
Offg. Meteorological Reporter to the Govt. of Bengal.
Meteorological Office, Bengal, the 17th March 1886.

NOTICE.

IT is hereby notified, for general information, that subscriptions to the complete series of the Indian Law Reports should be registered during the first three months of each calendar year. Subscribers are therefore requested to send in their subscriptions for the complete series before the 31st March in each year. Those who register their names after that date will understand that copies will be supplied only if available.

H. A. D. PHILLIPS,
Under-Secy. to the Govt. of Bengal.
The 24th November 1886.

The Indian Law Reports,

Published under Authority.

THE Indian Law Reports, published under the authority of the Governor-General in Council, appear in monthly parts, published as soon as possible after the first of each month at Calcutta, Madras, Bombay, and Allahabad, and comprise four series—one for the Calcutta High Court, a second for the Madras High Court, a third for the Bombay High Court, and a fourth for the Allahabad High Court. The cases heard by the Privy Council on appeal from each High Court are reported in the Series for that High Court. Cases heard by the Privy Council on appeal from Provinces in India not subject to any High Court are reported in the Calcutta Series.

The Calcutta Series is distributed by the Bengal Secretariat, and the Madras, Bombay, and Allahabad Series are distributed direct from Madras, Bombay, and Allahabad respectively.

In supersession of the previous advertisements, on and from the 1st January 1889 the terms of subscription and sale will be as follows for current issues as well as for back numbers of the Reports from 1876:—

Terms of subscription payable annually in advance.

For the complete series, *including postage*, Rs. 22-8.

	Without postage. Rs. A. P.	With postage. Rs. A. P.
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Notification.

IN modification of the Notice, dated the 7th November 1882, published in Part II, page 1686 of the *Calcutta Gazette*, the following notice is published for information :-

Notice is hereby given, that the terms for the purchase of publications from, and for all work done in, the Bengal Secretariat Press for other than Government offices or offices under the control of Government Officers, are strictly cash.

In future no publication will be supplied, of advertisement notice, &c., inserted in either or the Gazettes, except for the offices mentioned above unless the cost thereof has been remitted to the Accountant, Bengal Secretariat. In the case of insolvency notices, cash must be sent with such notices when forwarded by Mofussil courts or offices, and for those forwarded by the Official Assignee, cash must be paid on presentation of memorandum of cost by the Accountant and Treasurer, Bengal Secretariat.

Remittances in postage stamps should be accompanied by an addition of one anna in the rupee on account of discount.

R. H. WILSON,
Offg. Secy. to the Govt. of Bengal.

The 24th February 1886.

NOTE.—Rate for advertisements in the *Calcutta Gazette*:—

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☞ Applications for Acts of the Bengal Legislative Council required on the public service should be addressed to the REGISTRAR, office of the Legislative Department, Government of Bengal, situated at No. 5 on the top floor of the Government Offices, Writers' Buildings, Calcutta.

Copies are available for purchase at MESSRS. THACKER, SPINK AND CO., Government Place, Calcutta.

Notice.

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[REGISTERED No. 29.]

No. 7 of 1890.

SUPPLEMENT TO
The Calcutta Gazette.

WEDNESDAY, FEBRUARY 12, 1890.

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ANNUAL AWARD OF A MEDAL TO THE MOZUFFERPORE ZILLAH SCHOOL.

GENERAL DEPARTMENT—EDUCATION.

Calcutta, the 5th February, 1890.

RESOLUTION.

READ—

A letter from the Commissioner of Patna, No. 180G, dated the 22nd March, 1889.

Read also—

A letter from the Director of Public Instruction, No. 2023, dated the 5th April, 1889.

IN commemoration of the visit of the Lieutenant-Governor to Sursund in the district of Mozufferpore, Mussamut Dulhin Golab Kuer and her son-in-law, Babu Damodar Deb Narain Singh, have paid into the Mozufferpore Treasury the sum of Rs. 900 for investment in Government securities as an endowment for the annual award of a medal, to be designated the "Bayley Medal," to the student of the Mozufferpore Zillah School obtaining the highest marks in Sanskrit at the University Entrance Examination of each year. The Lieutenant-Governor is pleased to accept the donation, and tenders his thanks to the donors for their liberality. The Magistrate of Mozufferpore will be the administrator of the fund.

ORDER.—Ordered, that a copy of this Resolution be forwarded to the Commissioner of Patna for information and for communication to the donors, and to the Director of Public Instruction for information.

Ordered also, that a copy of this Resolution be published in the *Calcutta Gazette*.

By order of the Lieutenant-Governor of Bengal,

P. NOLAN,

Secretary to the Government of Bengal.

INCIDENCE OF TOLLS IN THE CIRCULAR AND EASTERN CANALS.

PUBLIC WORKS DEPARTMENT, BENGAL,--IRRIGATION.

RESOLUTION.

No. 238 *I.A.*

Dated Calcutta, the 11th February 1890.

READ—

(1) Memorial from the Bengal National Chamber of Commerce, dated 17th November 1887.
(2) Letter No. 2455T., from Agent, Bengal Central Railway, dated 24th November 1887.
(3) Bengal Government Notifications Nos. 349-350, dated 17th September 1889.
(4) Letter from Manager, Eastern Bengal Railway, No. 821, dated 19th October 1889.
(5) Bengal Government Notification No. 382, dated 21st October 1889.
(6) Letter from Secretary, Young Men's Association, Senhati, dated 6th November 1889.
(7) Letter from Messrs. Hoare, Miller and Company, No. 904, dated 10th December 1889.
(8) Bengal Government Notification No. 455, dated 17th December 1889.

In regard to the complaints which have been made against the tolls charged on boats using the channels included in the "Circular Canal Route," the Lieutenant-Governor has arrived at the conclusion that it is advisable to enquire into the system of measurements and incidence of tolls charged under the rules and notifications now in force.

2. *It is resolved* therefore to appoint, for the above purpose, a Commission consisting of—

Major McArthur, R.E. ... ... *President.*
Mr. W. C. Boyce, District Traffic Superintendent, Eastern Bengal Railway ... ... } *Members.*
Baboo Sitanath Roy, Honorary Secretary, Bengal National Chamber of Commerce ... ... } *Members.*

3. The enquiry will embrace the following points—

1. Present system of boat measurement, and whether it can be improved in the direction of (*a*) greater accuracy of gross tonnage or (*b*) ascertaining net tonnage.
2. The incidence of existing rates on the goods carried in the Canals; whether the rates should be revised; and whether differential rates should be introduced or not.
3. The boundaries within which the tolls are levied.
4. The practicability of levying tolls on the basis of "challans" of the merchants or others whose goods are carried.

ORDER.—Ordered that copies of this Resolution be sent to the President and members named to serve on the Commission for information and guidance, and to the Revenue, Appointment and Financial Departments of this Government, the Board of Revenue, the Commissioner of the Presidency Division, and the Examiner of Public Works Accounts, Bengal, for information.

By order of the Lieutenant-Governor of Bengal,

J. M. McNEILE, *Col.*, R.E.,
Secretary to the Government of Bengal,
P. W. Dept.

[REGISTERED No. 29.]

No. 7 of 1890.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 12, 1890.

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PART I.

Orders and Notifications by the Lieutenant-Governor of Bengal, the High Court, Government Treasury, &c.

ORDERS BY THE LIEUT.-GOVERNOR OF BENGAL.

No. 163A.

GENERAL.—*The 4th February* 1890.—Mr. J. B. Worgan, District and Sessions Judge, Cuttack, is appointed to act as District and Sessions Judge of Dinagepore, during the absence, on deputation, of Mr. J. G. Charles, or until further orders.

Mr. F. J. G. Campbell is appointed to act as District and Sessions Judge of Cuttack, during the absence, on deputation, of Mr. J. B. Worgan, or until further orders, with effect from the date on which he joined the appointment.

Mr. A. H. Collins is appointed to act, until further orders, in the first grade of Joint-Magistrates and Deputy Collectors, and is posted to the Sudder station of the district of Dinagepore, on being relieved of his present appointment as Officiating District and Sessions Judge of that district.

The 5th February 1890.—The Lieutenant-Governor is pleased, under paragraph 16, Special India Army Circular, dated the 16th March 1889, to promote Captain Joseph Binning, Presidency Volunteer Reserve Battalion, to the rank of Major.

Baboo Komul Narain Chuckerbutty, Sub-Deputy Collector, Tipperah, is transferred to the Sudder station of the Chittagong Hill Tracts district.

Mr. H. Lee, Officiating Magistrate and Collector, Midnapore, is allowed leave for nine days, under article 291 of the Civil Service Regulations in extension of the leave granted to him under the order of the 7th January 1890.

The 6th February 1890.—Mr. W. F. Meres, C.S., has been granted by Her Majesty's Secretary of State for India an extension of furlough for twelve months.

The 7th February 1890.—The services of Captain C. J. Keene of the Eastern Bengal State Railway Volunteer Rifle Corps are placed at the disposal of the Government of the Punjab.

Mr. J. B. Worgan, District and Sessions Judge, is allowed leave for twelve days, under article 108 of the Civil Service Regulations, in extension of the leave granted to him under the order of the 31st January 1890.

The 11th February 1890.—Baboo Okhoy Coomar Bose, Deputy Magistrate and Deputy Collector, on leave, is posted to the Sudder station of the district of Noakholly.

The Licutenant-Governor is pleased to accept the resignation tendered by Lieutenant H. Stuart of his appointment as Quartermaster, Behar Light Horse.

Lieutenant H. C. Spry is appointed to be Honorary Quartermaster of the Behar Light Horse, with effect from the 2nd January 1890, *vice* Lieutenant H. Stuart, resigned.

Commander E. W. Petley, Calcutta Naval Volunteers, is, with the sanction of His Excellency the Governor-General in Council, appointed Honorary Aide-de-Camp on the staff of His Honour the Lieutenant-Governor of Bengal.

Mr. C. P. Caspersz, Officiating Magistrate and Collector, Chittagong, is allowed furlough for ten months, under article 340 of the Civil Service Regulations, with effect from the 21st March 1890, or such date as he may be relieved.

POLICE.—*The 10th February* 1890.—Mr. R. F. G. Faussett, Officiating Assistant Superintendent of Police, is allowed leave for one year, under article 369 of the Civil Service Regulations, with effect from the 12th December 1889.

Mr. C. E. Briscoe, Officiating Assistant Superintendent of Police, Midnapore, is allowed leave for ten days, under article 273 (*a*) of the Civil Service Regulations, with effect from the date on which he availed himself of it.

ECCLESIASTICAL.—*The 10th February* 1890.—The Revd. W. S. Mitchell, Baptist Missionary, Gya, is hereby licensed, under section 6 of Act XV of 1872, to solemnize marriages between persons one or both of whom is a Christian or are Christians.

The Revd. W. S. Mitchell is also appointed to be a Registrar of Births and Deaths under Act VI of 1886.

The 11th February 1890.—The Revd. F. W. Brown, Minister of the American Baptist Mission, Balasore, is hereby licensed, under sections 6 and 9 of Act XV of 1872, to solemnize marriages between persons one or both of whom is a Christian or are Christians, and to grant certificates of marriages between persons who are Native Christians.

The Revd. F. W. Brown is also appointed to be a Registrar of Births and Deaths under Act VI of 1886.

EDUCATION.—*The 8th February* 1890.—Mr. E. F. Mondy, Officiating Principal, Dacca College, is appointed to act, until further orders, in class III of the Bengal Educational Service, with effect from the 29th December 1889, *vice* Mr. A. C. Edwards, on privilege leave.

The 11th February 1890.—Baboo Syama Churn Ganguli, Principal, Utterpara College, is appointed to act in class II of the Subordinate Educational Service, with effect from the 18th November 1889, *vice* Baboo Mathura Nath Chatterjee, on leave.

Mrs. Stansbury, Head Mistress, Eden Female School, Dacca, is appointed to act in class III of the Subordinate Educational Service, with effect from the 18th November 1889, *vice* Baboo Syama Churn Ganguli, on deputation.

Baboo Upendra Nath Maitra, Lecturer, Dacca College, is appointed to act in class IV of the Subordinate Educational Service, with effect from the 18th November 1889, *vice* Mrs. Stansbury, on deputation.

Dr. A. F. R. Hoernle, Principal, Madrassa College, Calcutta, is allowed furlough for eight months, under article 340 of the Civil Service Regulations, with effect from the 1st July 1890, or such subsequent date as he may avail himself of it.

MEDICAL.—*The 11th February* 1890.—Surgeon-Major A. Tomes, Officiating Civil Surgeon, Howrah, is allowed leave for two months, under article 291 of the Civil Service Regulations, with effect from the date on which he may be relieved.

The following notification is republished from the *Assam Gazette*:—

No. 652G.—The 31st January 1890.—Consequent on the recall to duty from privilege leave, for the period from the 1st to the 5th of September 1889, of Mr. J. Kennedy, C.S., the officiating promotions of Messrs. J. D. Anderson, C.S., A. Porteous, C.S., and H. Le Mesurier, C.S., announced in notification No. 351 of the 25th of October 1889, published in the *Assam Gazette* of the 2nd of November 1889, will have effect from the 20th, instead of the 15th of September 1889.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATION.

The 7th February 1890.—In the order dated the 24th December 1889, published in the *Calcutta Gazette* of the 25th idem, notifying the result of the Half-yearly Departmental Examination of Assistant Magistrates and others held in November last, *for* "Mr. E. E. Slane, Assistant Conservator of Forests, and Mr. R. Quinnell, Assistant Conservator of Forests" *read* "Mr. E. E. Slane, Sub-Assistant Conservator of Forests, and Mr. R. Quinnell, Sub-Assistant Conservator of Forests."

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

REVENUE DEPARTMENT,—FORESTS.

NOTIFICATION.

The 5th February, 1890.—In exercise of the powers conferred upon him by section 19 of the Indian Forest Act VII of 1878, the Lieutenant-Governor hereby declares the tracts of land described below, which (on the 26th November, 1880, as regards the Girga Forest, and on the 20th February, 1882, as regards the other four forests) were notified as proposed Reserves, to be Reserved forests with effect from the 1st March, 1890.

Girga Forest.

District.	Pergunnah or other sub-division.	Name of forest	Description of boundaries.
Singbhoom ...	Porahat ...	Porahat (Girga)	*North.*—A demarcated line from the Lohardugga-Singbhoom boundary skirting the village lands of Jojobir, Komdih, Omda, and Sidma to a point north-west of the village of Kamargaon. *East.*—A demarcated line from that point skirting the village lands of Kamargaon, Salking, Usnugir, and Daimar to the Karo river; then that river for about one mile; then a demarcated line skirting the village lands of Sadiuli and Jilingutu to a point near that village. *South.*—A demarcated line skirting the village lands of part of Jilingutu, Tomden, Jojoda (or Bangurda), Kamai, Sinko (or Chindung), Baru Lumin and Bera Lumin. *West.*—The Lohardugga district boundary.

NOTE.—From t[illegible] omitted the lands belonging to the following groups of villages which have been marked off by [illegible]on :—

Group.	Villages.
I.—Bando	1. Bandu. 2. Baritola. 3. Khanta. 4. Irgi. 5. Lhosod. 6. Kita.
II.—Pandoa	1. Ponda. 2. Aida. 3. Aidatola.

Birda Forest.

District.	Pergunnah or other sub-division.	Name of forest.	Description of boundaries.
Singbhoom ...	Porahat	Birda	*North.*—The demarcated boundary of the Kundrugutu-Bundgaon Pirs starting from the trijunction point of these two pirs with the Baring Pir near Jiklatang and running to the hill west of Kairka. *East.*—A demarcated line passing southward for a mile and a half over the hills west of and skirting the village lands of Jalmai and Bandi; then running generally southward past the villages of Lonjagda Mamla, Kocha Songra, and Songra to the road near Tuihasa. *South.*—A demarcated line from this point past the villages Tuihasa, Erekora, Karla and Birda. *West.*—A demarcated line from Birda past the villages Birda, Dighi, Kontari, Dargada, again Kontari and Dighi and Kaman to the north boundary at Jiklatang.

NOTE.—From this area are omitted the lands belonging to the following villages which have been marked off by demarcation :—

Group.	Villages.
Chirkubera ...	1. Chirkubera. 2. Porotoli. 3. Anidih. 4. Akir. 5. Dumree.

Songra Forest.

DISTRICT.	Pergunnah or other sub-division.	Name of forest.	Description of boundaries.
Singbhoom ...	Porahat ...	Songra ...	*North.*—A demarcated line from a point on the boundary between Songra and Lagra east of the Harni stream near the village of Dumari and skirting the range of hills past the villages Dumari, Angria, Lagra, Chatma, Saunia, Sinko, Marla and Sarda to the Chaibassa-Bandgaon road at Tupna; thence passing over the Bicha Hill to Tutio. *East.*—The Tamar pergunnah of Lohardugga for about 4 (four) miles; then the Seraikela estate to a hill west of Jonua and south-east of Kurjuli. *South.*—A demarcated line from this hill passing over the Lokudburn Hill and crossing the Tolsadom stream about one mile north of Mundri; then passing between the hills half a mile north of Kutipiri to the Chaibassa-Gudri road; then that road for about a mile. *West.*—A demarcated line skirting the village lands of Roauli, Jamjni, Hoilohr, Sidma, Bandu, Kumar and Buriuli to the Kundrugutu road; then that road to a point at the foot of the Jhanda hill about a mile south of Kundrugutu; then a demarcated line skirting the village lands of Kundrugutu, Bingbu, Kandeon Khandajni, Lota, Chaki, Daraia, Jirai, Kopa, Hesatola and Gupdi to the north boundary near Dumari.

NOTE.—From this area are omitted the lands belonging to the following villages which have been marked off by demarcation:—

Group.	Villages.
I.—Pingu	1. Pingu. 2. Loahatu.
II.—Kocha	1. Kocha. 2. Dudukundih. 3. Goai.
III.—Tarabara	Tarabara.
IV.—Tebo	1. Tebo. 2. Sainkata
V.—Kotagarah	1. Kotagarah. 2. Senkra.
VI.—Halmad	1. Halmad. 2. Rogod.
VII.—Raigora	Raigora.
VIII.—Jonko	Jonko.
IX.—Kurjuli	1. Kurjuli. 2. Kanmail. 3. Burudih.

Kundrugutu Forest.

DISTRICT.	Pergunnah or other sub-division.	Name of forest.	Description of boundaries.
Singbhoom ...	Porahat ...	Kundrugutu ...	*North.*—A demarcated line starting from a point on the Girga-Baring Pir boundary near the village of Gere, and skirting the lands of the villages Gere, Mamail, Chakomtola, Ichagutu, Siyankel, Longabera, again Siyankel and Ichagutu, Darung, again Chakomtola, Tomrom, Jatanghasa and Champaba to the Raru river near Tondanghatu; then that river for about one and a half miles to a point between Sanhai (deserted village) and Jarakel; then a demarcated line skirting the village lands of Lota, Manmaru, Jarakel and Kundrugutu, joining the western boundary of the Songra forest at a point on the old road about a mile south of Kundrugutu. *East.*—The old road running in a general southerly direction from a point about a mile south of Kundrugutu to Buriuli, and which forms the western boundary of the Songra Reserved forest.

District.	Pergunnah or other sub-division.	Name of forest.	Description of boundaries.
			South.—A demarcated line from a point on th Kundrugutu road north of Buriuli, an skirting the village lands of Buriul Sidma, Hoilohr, Lamda, Dindapani, Den and Jate; then the Chaibassa-Gudri roa from a point near Jate to a stream nea Kotagara; then a demarcated line skirt ing the village lands of Kotagara an Jarakel to the Gompai nadi; then th Gompai nadi for 850 feet near Birkel then a demarcated line passing over th ridge of the hill north of the village Kir (or Giru) to the Karo river. *West.*—The Karo river past Roro to a point abou a quarter of a mile below the junction the Karo and Raru rivers; then a dema cated line skirting the village lands Buru Ururing, Ururing, Biti, Tutuk (deserted), Jomtai, Olmokund and Gere the north boundary.

NOTE.—From this area are omitted the lands belonging to the following villages which have be marked off by demarcation:—

Group.	Villages.
I.—Tolongjiri	... Tolongjiri.
II.—Kaiom	... 1. Buru Kaiom. 2. Bera Kaiom.
III.—Dharion	... 1. Dharion. 2. Kamrora.
IV.—Kudabera	... 1. Kudabera (or Kodobera). 2. Kukruburu. 3. Diai.
V.—Jonkopai	... Jonkopai.

Bera Forest.

District.	Pergunnah or other sub-division.	Name of forest.	Description of boundaries.
Singbhoom	Porahat ...	Bera ...	*North.*—A demarcated line running from a point near the village of Kichinda south-west of Gudri, skirting the village lands of Kichinda, Tirkera, and Gudri to the Gompai nadi; then up that stream for about 1,400 feet; then again a demarcated line skirting the village lands of Birkel and Jarakel to the Gompai nadi near Jarakel village; then the Gompai nadi for about 1½ miles and on to the Gudri-Chaibassa road. *East.*—The Gudri-Chaibassa road from a point near Kotagara to a point near Jate (along the boundary of the Kundrugutu forests); then a demarcated line skirting the village lands of Jate to the Danki Manda stream; then that stream for about 1,000 feet; then a demarcated line skirting the village lands of part of Jate, Joro (or Byjora), Banjira and Dura to the Sanjai river; down that stream for about ¾ of a mile to its junction with the Danluhr nadi; then up that nadi for about 2,200 feet; then a demarcated line skirting the village lands of Kutipiri, Banskata, Ponsoa and Jarakel to the Multrabera nadi, which it follows for about 400 feet on to its junction with the Mantuda nadi, which it follows for about 2,000 feet past Boikora and Berabinda; then a demarcated line skirting the village lands of Jhaliamara, Khorimati, and Brindabon. *South.*—A demarcated line from a point north of Dhunamara skirting the village lands of Jamjni, Ghoraduba, Soinka, Kuntupai and Dorbo to the Chaibassa-Gurjun road; then that road along the Bera Leda forest boundary until it meets the Anandpur estate.

DISTRICT.	Pergunnah or other su -division.	Name of forest.	Description of boundaries.
			West.—A demarcated line following the boundary between the Anandpur estate and the Porahat and Dorka Pirs of the Porahat estate to the junction of the Koel and Karo rivers; then the Karo river to a point about half a mile north of the village Saudiuli; then a demarcated line skirting the village lands of Konskel and Kichinda.

NOTE.—From this area are omitted the lands belonging to the following villages which have been marked off by demarcation—

Group.	Villages.
I.—Saruda	... Saruda.
II.—Gulikora	... 1. Gulikora. 2. Tongsarjom.
III.—Serengda	... Serengda.
IV.—Kantinkel	... 1. Kantinkel. 2. Eugan. 3. Komurkel. 4. Konsai.
V.—Hindiong	... 1. Hindiong. 2. Sausal. 3. Rairda.
VI.—Sarugara	... 1. Sarugara. 2. Chtar.
VII—Oranga	... 1. Oranga. 2. Kebra. 3. Horo. 4. Bara. 5. Tomsai.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 10th February, 1890.—The following programme of the proposed Visitation Tour of the Lord Bishop of Calcutta is published for general information.

P. NOLAN,
Secretary to the Govt. of Bengal.

Programme of the Bishop of Calcutta's Visitation of the Central Provinces and others parts, 1890.

Station.	Arrival.	Departure.	REMARKS.
Calcutta	.....	Thursday, February 13th.	
Harda	Saturday, February 15th ...	Monday „ 17th.	
Chanda	Tuesday „ 18th ...	Friday „ 21st.	
Nagpur	Friday „ 21st ...	Tuesday „ 25th.	
Raipur	Wednesday „ 26th ...	Thursday „ 27th.	
Kamptee	Friday „ 28th ...	Tuesday, March 4th.	
Akola	Tuesday, March 4th ...	Wednesday „ 5th	
Jubbulpur	Wednesday „ 5th ...	Monday „ 10th.	
Allahabad	Tuesday „ 11th ...	„ „ 17th ...	Visiting Pertabgarh.
Ranchi	Wednesday „ 19th ...	„ „ 24th.	
Calcutta	„ „ 26th ...	Tuesday, April 8th.	
Barharwa	Tuesday, April 8th ...	Wednesday „ 9th.	
Taljhari	Wednesday „ 9th ...	Monday „ 14th.	
Bhagulpur	Monday „ 14th ...	Tuesday „ 15th.	
Jamalpur	Tuesday „ 15th ...	Wednesday „ 16th.	
Motihari	Wednesday „ 16th ...	Friday „ 18th.	
Mozufferpur	Friday „ 18th ...	Monday „ 21st.	
Durbungha	Monday „ 21st ...	Wednesday „ 23rd.	
Calcutta	Thursday „ 24th ...		

Letters should, as a general rule, be addressed to those places where a Sunday is spent, the names of which are printed in italics. Matters of routine requiring immediate attention should be addressed to the Bishop's Commissary, Kidderpur Parsonage, Calcutta.

The Bishop desires to inspect all the Church Registers and other books at each station which he visits.

H. O. MOORE, *Bishop's Chaplain.*

THE PALACE; *Calcutta, 28th January*, 1890.

NOTIFICATION.

The 7th February, 1890.—Baboo Bonomali Pramanick, Sub-Deputy Collector of Baraset, in 24-Pergunnahs, is appointed, under Rule 1, Chapter VI of the rules made by the Local Government under the Bengal Tenancy Act, to be a Settlement Officer in place of Baboo Satchidananda Mukerjee, Sub-Deputy Collector, for the purpose of making a survey and preparing a record of rights in estate No. 26 in the district of 24-Pergunnahs.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 11th February, 1890.—All Deputy Collectors in the Lower Provinces of Bengal are hereby authorized to discharge the functions of Revenue Officers under Chapter X of the Bengal Tenancy Act VIII of 1885, and are vested with the powers of a Settlement Officer under Rule 1, Chapter VI of the rules framed by Government under that Act.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 11th February, 1890.—Under section 3 of the Bengal Survey Act V of 1875, the Lieutenant-Governor is pleased to order that a survey shall be made of all the lands in towji No. 4 of the Bankoorah district, and that the boundaries of mouzahs and fields situated therein shall be demarcated.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 6th February 1890.—Baboo Shama Charan Mitter, Deputy Collector, is appointed Deputy Collector of Income-tax in the district of Hooghly, *vice* Baboo Gyanendra Nath Pal, on leave, and, under section 40 of Act II of 1886, is vested with the powers of a Collector under the Act.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 10th February 1890.—Baboo Girish Chandra Dutt, Deputy Collector, is appointed Deputy Collector of Income-tax in the district of Noakholly, *vice* Baboo Kali Prasanna Chowdhury, and, under section 40 of Act II of 1886, is vested with the powers of a Collector under the Act.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 5th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for the construction of the central distillery at Burdwan, in the villages of Barsarbamangala and Muradpur, mahalla Paikmarapara, pergunnah Burdwan, zillah Burdwan, it is hereby declared that for the above purpose a piece of land measuring, more or less, 4 bighas 6 katas and 14 chataks of standard measurement, bounded on the North by the paddy fields of Muktakesi Debi and waste lands of Jagatmohini Dasi of Kulashushini; on the West by the public road and side lands; on the South by the *bastu* lands of Jagatmohini Dasi of Kulashushini and the Bhutgariya tank or Dattapokar and the paddy fields of Muktakesi Debi; on the East by the paddy fields of Muktakesi Debi, is required within the aforesaid villages of Barsarbamangala and Muradpur, mahalla Paikmarapara. A copy of the land plan may be inspected by the parties interested in the office of the Collector of Burdwan.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 8th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for the construction of a central distillery at Furreedpore, in the village of Alipore, pergunnah Dhuldi, zillah Furreedpore, it is hereby declared that for the above purpose a piece of land measuring, more or less, 7 beegahs 5 cottahs and 18 dhoors of standard

measurement, equivalent to 2 acres 1 rood and 27 poles, bounded on the North by the Govindapore road, on the East by the road leading to the Ferry ghat, on the South by the Furreedpore khal, and on the West by a hálot, is required within the aforesaid village of Alipore. A plan of the land may be inspected by the parties interested at the office of the Collector of Furreedpore.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

JUDICIAL DEPARTMENT.

No. 164A.

The 4th February 1890.—The undermentioned Honorary Magistrates in the district of Nuddea are vested with the powers of a Magistrate of the second class—

At Kishnaghur	... ...	Baboo Umesh Chundra Dutta.
At Kooshtea	... ...	Baboo Ram Gopal Datta. „ Bishwanath Singh.
At Ranaghat	... ...	Baboo Jogesh Chundra Pal Chowdhury.

Under section 320 (*k*) of the Code of Criminal Procedure (Act X of 1882), the Lieutenant-Governor exempts Baboo Dwaraka Nath Maitra, a pleader of the Munsif's Court at Atia, from service as assessor in criminal trials held within the district of Mymensingh.

The 5th February 1890.—Baboo Janoki Nath Dutt, Munsif of Serampore, in Hooghly, is appointed to act as a Munsif in the district of Rajshahye, to be ordinarily stationed at Seebgunge, during the absence, on leave, of Baboo Hari Narain Roy, or until further orders.

Baboo Janoki Nath Dutt is vested with the powers of a Judge of a Court of Small Causes for the trial of suits cognizable by such a Court up to the value of Rs. 50 within the local limits of the Seebgunge Munsifi.

Baboo Jaduv Chandra Sen, B L., is appointed to act as a Munsif in the district of Hooghly, to be ordinarily stationed at Serampore, during the absence, on deputation, of Baboo Janoki Nath Dutt, or until further orders.

Mr. S. J. Douglas, Joint-Magistrate and Deputy Collector, Gya, is vested with powers under sections 110, 183, 186, 191 clause (*c*), 260 and 524 of Act X of 1882.

The 6th February 1890.—Baboo Radha Shyam Sing, Deputy Magistrate and Deputy Collector, Jessore, is vested with the power to try summarily the offences mentioned in section 260 of the Code of Criminal Procedure.

The 7th February 1890.—Mr. A. C. Sen, Officiating Joint-Magistrate, Cuttack, is vested with powers under section 110 of Act X of 1882.

The undermentioned Commissioners of the Beernagore Municipality, in the district of Nuddea, are appointed to be Honorary Magistrates and vested with the powers of a Magistrate of the third class for the purpose of forming a Bench for the trial of municipal cases under Act III (B. C.) of 1884, and under section 34 of Act V of 1861 :—

Baboo Monindra Nath Mookerjee.	Baboo Nashiram Sarkar.
„ Baranashi Bosu.	„ Narendra Nath Mookerjee.
„ Upendra Nath Mookerjee.	„ Jogendra Nath Mookerjee.

The 8th February 1890.—The undermentioned gentlemen are appointed to be Honorary Magistrates of the Independent Benches mentioned in the district of Mymensingh, and are vested with the powers of a Magistrate of the third class :—

For the Independent Bench at the Sudder Station :—

Baboo Surja Kumar Das, Partition Deputy Collector.	Baboo Nil Ratan Mookerjee.

For the Tangail Independent Bench.

Mir Mushruf Hosain.	Baboo Isan Chandra Gupta.

For the Netrokona Independent Bench.

Baboo Rajani Kanth Sen.	Baboo Gour Sunder Singh.

For the Kishoregunge Independent Bench.

Baboo Krishna Narain Roy.	Baboo Ram Narain Agasti.

Under the authority vested in him by the final clause of section 357 of the Code of Criminal Procedure, Act X of 1882, the Lieutenant-Governor empowers Baboo Kailash Chandra Chatterjee, Sub-Deputy Magistrate of Nattore, in the district of Rajshahye, to take down evidence in criminal cases in the English language.

The 10th February 1890.—Baboo Umesh Chandra Sen, Munsif of Satkhira, in the district of Jessore, is vested with the powers of a Judge of a Court of Small Causes for the trial of suits cognizable by such a Court up to the amount of Rs. 50 within the local limits of the Satkhira Munsifi, during the absence, on leave, of Baboo Chandi Charan Sen, or until further orders.

Baboo Tara Prosonno Roy is appointed to be an Honorary Magistrate of the Manickgunge Bench, in the district of Dacca, and is vested with the powers of a Magistrate of the third class.

The Lieutenant-Governor accepts the resignation tendered by Baboo Grish Chunder Roy of his appointment as an Honorary Magistrate of the Manickgunge Bench, in the district of Dacca.

The 11th February 1890.—Baboo Sheo Nundun Lal Roy, Deputy Magistrate and Deputy Collector, Chumparun, is vested with the power to try summarily the offences mentioned in section 260 of the Code of Criminal Procedure.

Baboo Prosanna Kumar Dutt, Deputy Magistrate, Bogra, is vested with powers under sections 110, 133, 186 and 524 of the Code of Criminal Procedure.

GRANT OF LEAVE TO MUNSIFS.—*The 8th February* 1890.—Baboo Revati Charan Banerjee, Munsif of Diamond Harbour, in the district of the 24-Pergunnahs, on deputation to
s allowed leave for ten days, viz, eight days under article 309
is, and the remaining two days under article 306(*b*) of the same
the 16th February 1890, or from the date on which he may be

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

[Third Publication.]

NOTIFICATION.

The 21st January 1890.—Under section 2 of Act II (B.C) of 1867 (an Act to provide for the punishment of public gambling and the keeping of common gaming houses), the Lieutenant-Governor is pleased to authorize the extension, from the 1st February 1890, of the provisions of the said Act to the villages of Saidpore and Kuja Saidpore (commonly known as the town and bazar of Saidpore), within the jurisdiction of the police-station of Nilphamari and the district of Rungpore The boundaries of the tract within which the said Act shall be in force are as follows:—

North—A straight line drawn from the Saidpore Rifle Range to Penduram Bairagi's house.

South—A straight line drawn from the east of Baboopara to the village road east of Nanku Havildar's para.

East—A straight line drawn from Penduram Bairagi's house to the east of Baboopara.

West—A straight line drawn from the village road east of Nanku Havildar's para to the Saidpore Rifle Range.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

[Third Publication.]

NOTIFICATION.

The 22nd January 1890.—It is hereby notified that the Lieutenant-Governor authorises the extension of the provisions of section 34 of Act V of 1861 to the town comprising the places known as Makundprosad, Jagarsing and Gurujang, in the district of Pooree, within the boundaries noted below, with effect from the 1st April 1890—

Bounded on the north by Tangiapara, Nuagan, Kumbharbast and Kunjiama; on the south by Sanpala, Khorda, and Jaganathpur; on the east by Bartola and Kholadwar; on the west by Sardhapur.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT,—BENGAL.

IRRIGATION.

The 11th February 1890.

No. 40.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for compensating Adi Mallik Chowkidar for his jagir land acquired for the Makundpur drainage channel of Machhgaun Canal, in the village of Pakunpur, pergunnah Gandito, zillah Cuttack, it is hereby declared that for the above purpose a piece of land measuring, more or less, 2 poles of standard measurement, bounded on the north by royti land of Bhaigo Das; on the south by that of Bharat Majhee; on the east by that of Donai Mohanti; and on the west by that of Bidyakar Das, is required within the aforesaid village of Pakunpur.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

No. 41.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for compensating Gokhai Mallik Chowkidar for his jagir land acquired for No. 8, Distributary and Branches from the Puttamoondi Canal, in the village of Ganiamuha, pergunnah Derabis, killah Aul, zillah Cuttack, it is hereby declared that for the above purpose a piece of land measuring, more or less, 6 poles of standard measurement, bounded on the north by waste mehal land; on the south and east by thani land of Parikhit Prusti; and on the west by Branch B of No. 8, Distributary, Puttamoondi Canal, is required within the aforesaid village of Ganiamuha.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

No. 42.—*Erratum.*—In the Resolution of the Government of Bengal, Public Works Department, Irrigation, published at page 202 of the Supplement to the *Calcutta Gazette* of the 5th February 1890, *for* "No. 198I.A." and "3rd February 1890" *read* "No. 64I.A." and "18th January 1890."

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Govt. of Bengal, P. W. Dept.

ESTABLISHMENT.

The 5th February 1890.

No. 39.—The services of Mr. W. H. Rushton, Executive Engineer (temporary rank), are temporarily transferred to the Railway Branch for employment on the Behar Section of the Eastern Bengal State Railway.

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

PUBLIC WORKS DEPARTMENT,—MARINE.

NOTIFICATION No. 35Mne.

The 7th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to appoint, under section 11 of the Indian Merchant Shipping Act VII of 1880, Mr. W. Warden, Collector of Customs and Shipping Master of Chittagong, to be "Detaining Officer" at that port.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

NOTIFICATION No. 36Mne.

The 7th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to extend the provisions of section 7 of the Indian Merchant Shipping Act VII of 1880, authorizing the provisional detention of ships believed to be unsafe, to the Port of Chittagong.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

[Firt Publication.]

NOTIFICATION No. 31Mne.

The 4th February 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 17).

BAY OF BENGAL.

BURMA COAST.

Alteration of light on Savage Island—port of Akyab.

IN continuation of Notice to Mariners, No. 14, dated the 27th January 1890, issued by this Office, information has been received from the Port Officer, Akyab, that the light on Savage island will be obscured from the 27th idem, preparatory to its removal to the temporary structure, and will be re-exhibited after 10 to 15 days. During this period a blue light will be burnt every ½ of an hour.

By direction of the Government of Bengal,

OLIVER LASH R.N.,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 4th February* 1890.

[First Publication.]

NOTIFICATION No. 32Mne.

The 4th February 1890.—The following Notice to Mariners is published for general informat

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 18).

BAY OF BENGAL.

BURMA COAST.

Blue lights on Savage island discontinued.

IN continuation of Notice to Mariners No. 17, dated the 4th instant, a telegraphic communication has been received from the Port Officer, Akyab, that the blue lights on Savage island were discontinued from the 2nd idem.

By direction of the Government of Bengal,

OLIVER LASH, D.P.,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 4th February* 1890.

[First Publication.]

NOTIFICATION No. 33Mne.

The 11th February 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT,—(MARINE).

NOTICE TO MARINERS (No. 19).

CHINA SEA.

SINGAPORE, WESTERN APPROACH—SALAT SINKI.

Bell buoy withdrawn; and a light-vessel moored on Ajax shoal.

THE British Admiralty has given notice (No. 23 of 1890) that on 1st February 1890 a light-vessel will be moored on Ajax shoal, west side of Salat Sinki, western approach to New harbour, Singapore:—

The light will be a *flashing* white light, showing a *flash every thirty seconds*; it will be elevated 38 feet above the sea, and should be visible in clear weather from a distance of 10 miles.

The light-vessel will be painted yellow, with the word *Ajax* in white letters on a black ground on her sides. She will carry a caged ball, painted red, at the masthead, as a day mark.

Position, lat. 1° 13′ 55″ N., long 103° 40′ 20″ E.

Also, that on the same date, the Bell buoy now marking Ajax shoal will be withdrawn.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 10th February* 1890.

[First Publication.]

NOTIFICATION No. 39Mne.

The 11th February 1890.—The following Notice to Mariners is published for genera information.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 20).

BAY OF BENGAL.

CHITTAGONG COAST.

Spar buoy replaced temporarily.

INFORMATION has been received from the Port Officer, Chittagong, that the Spar buoy referred to in Notice to Mariners No. 28, dated 18th March 1889, having sunk, a second class iron buoy has been laid down off the western edge of the sand in about 6½ fathoms low water; lat. 21° 31′ North, long. 91° 39′ East: Chart No. 859.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 10th February* 1890.

[Second Publication.]

NOTIFICATION No. 29Mne.

The 3rd February 1890.—The following Notice to Mariners is published for general information.

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 16).

BAY OF BENGAL.

ORISSA COAST.

Date of exhibition of new light from Chandipore flagstaff.

IN continuation of Notice to Mariners, No. 49, dated the 31st May 1889, issued by this Office, it is intended to exhibit the new light on the Chandipore flagstaff from the 1st May 1890.

The height of the new light above high-water mark will be 62 feet.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 30th January* 1890.

[Third Publication.]

NOTIFICATION No. 12Mne.

The 24th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 9).

AFRICA—NORTH-EAST SHORE.

GULF OF ADEN.

Permanent Light-ship off Ras Marbut, Aden Harbour.

Information has been received from the Political Resident at Aden that on the 15th February the temporary Light-vessel moored off Ras Marbut, Aden, Harbour, will be replaced by the permanent Light-ship. The vessel is moored in 18 feet at low water, and shows at an elevation of 39 feet above the sea a flashing White Light visible every minute. The vessel is painted Red, but has no Red Ball at mast-head and exhibits no Red Flag during the day as stated at page 90, Chapter IV, 3rd Edition of the Gulf of Aden Pilot.

By direction of the Government of Bengal,

E. W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, *Calcutta, the 22nd January* 1890.

[Third Publication]

NOTIFICATION No. 14Mne.

The 27th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE.)

NOTICE TO MARINERS—(No. 10).

AFRICA—EAST COAST.

RED SEA—WESTERN SHORE.

A light placed on the island of Difnein, Musawwa Channel.

INFORMATION has been received from the Consul-General for Italy, through the Director of Indian Marine, that a light visible at 6 miles distance, to indicate the North entry of the Musawwa Channel, has been placed on the N.-E. end of the Island of Difnein. The light is in latitude 16° 37′ 8″ N. and longitude 39° 18′ 15″ E. Arc of illumination 195 degrees, leaving a dark sector between the 65° and 250°.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th January* 1890.

[Third Publication.]

NOTIFICATION No. 15Mne.

The 27th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 11).

AUSTRALIA—EAST COAST.

ULLADULLA HARBOUR.

red light on Warden head, and discontinuance of pier light.

THE British Admiralty has given notice (No. 456 of 1889) that on 1st December 1889 a light would be exhibited from a light-house recently erected on Warden head, south side of entrance to Ulladulla harbour.

The light is a *fixed* White light, visible in clear weather from a distance of about 12 miles.

Position: Approximate lat. 35° 22½′ S.; long. 150° 31½′ E.

Also, that on the same date, the light (fixed *green*) previously shown from the pier head, Ulladulla harbour, would be discontinued.

By direction of the Government of Bengal,
EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th January* 1890.

[Third Publication.]

NOTIFICATION No. 16Mne.

The 27th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 12).

AFRICA—EAST COAST.

ZANZIBAR ISLAND.

Fixed light on Mwana Mwana Island.

INFORMATION has been received from the British Admiralty (No. 452 of 1889) that a light is now exhibited from a light-house (construction commenced in 1881) on the north extreme of Mwana Mwana island, north-west coast of Zanzibar island.

The light is a *fixed* white light.

Position: Lat. 5° 45′ 10″ S.; long. 39° 13′ 10″ E.

NOTE.—The regular exhibition of this light should not be relied on.

By direction of the Government of Bengal,
EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th January* 1890.

[Third Publication.]

NOTIFICATION No. 17Mne.

The 27th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE.)

NOTICE TO MARINERS—(No. 13).

INDIA—SOUTH.

CEYLON—EAST COAST.

A "Torpedo Buoy" placed at the entrance to Trincomalee Harbour.

THE Colonial Government of Ceylon has given notice that on and after 25th December 1889 until 28th February 1890, a Red Buoy, with a red flag and the words "Torpedo Buoy" painted on it, will be placed in the entrance to Trincomalee Harbour between Ostenburg Point and Little Sober Island, and 260 yards from the former.

The water in the triangle formed by this Red Buoy, the E. Point of Small Sober Island and Clappenburg Point, will be obstructed by mines.

All vessels should pass between the Buoy and Ostenburg Point.

By direction of the Government of Bengal,
EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th January* 1890.

[Third Publication.]

NOTIFICATION No. 19Mne.

The 28th January 1890.—The following Notice to Mariners is published for general information.

J. M MCNEILE, *Col.*, R.E.,
Joint-Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE.)

NOTICE TO MARINERS—(No. 14).

BAY OF BENGAL.

BURMA COAST.

Date of alteration of Savage Island light—Port of Akyab.

WITH reference to Notice to Mariners, No. 50, dated the 31st May 1889, issued by this office, a telegraphic communication has been received from the Port Officer, Akyab, that the transfer of Savage island light, at the entrance of the Port of Akyab, will commence from the 27th instant.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 27th January* 1890.

[Third Publication.]

NOTIFICATION No. 20Mne.

The 28th January 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 15).

BAY OF BENGAL.

BURMA COAST.

Position of a water-logged Native vessel and pieces of wreckage.

A TELEGRAPHIC communication has been received from the Port Officer, Rangoon, that the Master of the steam-ship *Euphrates* reports having passed on the 23rd instant a water-logged native vessel in latitude 15° 23′ north, longitude 94° 59′ east; also pieces of wreckage when 8 miles off Krishna light-vessel. Shipmasters are cautioned accordingly.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 27th January* 1890.

EASTERN BENGAL STATE RAILWAY SYSTEM.

NOTIFICATION.

No. 2.—Mr. W. H. Chase, District Locomotive Superintendent, is granted eight months' furlough, under article 371 of the Civil Service Regulations, 1st edition, with effect from 14th February 1890, with subsidiary leave from 4th idem, or such subsequent date as he may avail himself of the same.

G. F. O. BOUGHEY, *Lieut.-Col.*, *Manager.*

SEALDAH, *the 7th February* 1890.

CIVIL MEDICAL DEPARTMENT, BENGAL.

No. 1351, *dated 6th February* 1890.—Assistant Surgeon Nirmul Chunder Gupta, attached to the Lungleh Hospital in the Lushai country, is appointed to the medical charge of the sub-division and dispensary at Cox's Bazar in the Chittagong district, *vice* Assistant Surgeon Bejoy Gobind Chowdry, transferred.

No 1354, *dated 6th February* 1890.—Assistant Surgeon Bejoy Gobind Chowdry, attached to the sub-division and dispensary at Cox's Bazar, is appointed to the medical charge of the sub-division and dispensary at Palamow in the Lohardugga district, *vice* Assistant Surgeon Kali Nath Banerjee, removed.

No. 1357, *dated 6th February* 1890.—Assistant Surgeon Jogendro Nath Basu, a Supernumerary at the Presidency, is appointed temporarily to the medical charge of the sub-division and dispensary at Cox's Bazar in the Chittagong district, during the absence, on deputation, of Assistant Surgeon Nirmul Chunder Gupta, or until further orders.

A. HILSON, M.D.,
Inspector-General of Civil Hospitals, Bengal.

HIGH COURT NOTICE.

General Letter No. 1, dated Calcutta, the 20th January 1890.

From—C. M. W. BRETT, ESQ., Registrar, High Court,

To—The Sessions Judge / District Magistrate of

I AM directed to invite your attention to the accompanying copy of a Notification of the Government of Bengal, and to request that you will so arrange the business coming before your Court as to comply, as far as possible, with the wishes of the Government.

HIGH COURT.
ENGLISH DEPARTMENT.
Criminal.

NOTIFICATION.

The 24th December 1889.—It is hereby notified for general information that on the following Mahomedan holidays during the year 1890, all public offices and Revenue and Magisterial Courts in Bengal, with the exception of the offices of Collector of Customs Shipping Master, the Registrar of Assurances, Calcutta, the Collector of Stamp Revenue, Calcutta, the Stamping Department of the Office of the Superintendent of Stamps, Calcutta, and the Salt Rowannah and Opium Sale Departments of the Board of Revenue, shall be closed:—

Eed-ul-fitr, which falls on the 21st May, or, if the moon be not visible on the 20th May, on the 22nd May.

Eed-uz zoha, which falls on the 28th July, or, if the moon be not visible on the 18th July, on the 29th July.

Mohurrum, the last two days of which fall on the 26th and 27th August, or, if the moon be visible on the 16th August, on the 25th and 26th August.

Fatiah-dosz-dahum, which falls on the 27th October, or, if the moon be not visible on the 15th October, on the 28th October.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

Sheriff's Office, the 22nd January 1890.

NOTICE is hereby given that the First Criminal Sessions of the year 1890 of the High Court of Judicature at Fort William in Bengal for the Town of Calcutta and Factory of Fort William, and the places subordinate thereto, will be holden at the Court-house in the Town of Calcutta, on Monday, the seventeenth day of February next, at 11 o'clock in the forenoon, and so on from day to day until the said Sessions be over. And it is hereby proclaimed that all persons who will prosecute any of the prisoners to be brought up for trial at the said Sessions be present then and there to prosecute.

H. B. H. TURNER, *Sheriff.*

শরিফ আফিস, সন ১৮৯০ সাল তারিখ ২২শে জানুয়ারি।

সকলকে সমাচার দেওয়া যাইতেছে যে সুবে বাঙ্গালার ফোর্ট উইলিয়ম দুর্গের অধীন শহর কলিকাতার ও অন্যান্য স্থানের ফৌজদারী বিচার নিষ্পত্তি জন্য আগামী সন ১৮৯০ সালের ১৭ই ফেব্রুয়ারি সোমবার বেলা ১১ ঘটিকার সময় এবং যে পর্য্যন্ত সেশিয়ানের কার্য্য শেষ না হয় প্রতিদিন উক্ত সময়ে কলিকাতার হাই কোর্টের আপন আদালত ঘরে সন ১৮৯০ সালের প্রথম ক্রিমিনেল সেশিয়ান বসিবেক এবং এতদ্দ্বারা প্রচার করা যাইতেছে যে, যে সকল ব্যক্তি কোন কয়েদির বিরুদ্ধে ফৌজদারী মিছিল করিবেক তাহারা উক্ত স্থানে উক্ত সময়ে হাজির থাকিয়া মোকদ্দমা করে ইতি।

এইচঃ বিঃ এইচঃ টারনার, শরিফ।

TREASURY NOTICES.

DEPUTY COLLECTOR MR. C. A. S. BEDFORD, Assistant Commissioner, has been placed in charge of the Darjeeling Treasury from 1st February 1890, and authorized to draw bills on other treasuries.

By order,

HARI MOHAN CHANDRA, *Personal Assistant.*

COMMR.'S OFFICE, RAJSHAHYE DIVN., JULPIGOREE, *the 6th February* 1890.

DEPUTY COLLECTOR BABOO CHANDI CHARAN BOSU is temporarily placed in charge of the Dacca Treasury, during the absence, on public service, of Baboo Chandra Kumar Dutta, or until further orders.

A. L. CLAY, *Offg. Commissioner.*

DACCA COMMR.'S OFFICE, CAMP PATUAKHALI, *the 3rd February* 1890.

EDUCATION DEPARTMENT, BENGAL.

Subordinate Educational Service.

The 7th February 1890.—Babu Lachman Lal, Second Master of the Patna City School (class VI), is appointed to officiate as Head Master of the same institution, *vice* Mr. J. H. D'Abreu, on leave.

Maulavi Ifazuddin Ahmad, Third Master of the Patna City School, is appointed to officiate as Second Master of the same institution and in class VI, *vice* Babu Lachman Lal.

The 8th February 1890.—Babu Sarada Kanta Sen, Departmental Sub-Inspector of Schools, Tipperah (class VI), is allowed leave of absence for three months under Article 291 of the Civil Service Regulations, with effect from the 1st March 1890, or any subsequent date on which he may avail himself of it.

Babu Mahim Chandra Basu, Departmental Sub-Inspector of Schools, Mymensingh (class VI), is appointed to act as Deputy Inspector of Schools, Tipperah, during the absence, on deputation, of Babu Bidyadhar Das, or until further orders.

A. CROFT, *Director of Public Instruction.*

NOTIFICATION OF THE BOARD OF REVENUE.

No. 113B.

NOTICE is hereby given that the Third Sale of Opium, the Provision of 1887-88, will be held at the Government Opium Sale-room, No. 2, Bankshall-street, on Monday the 3rd March 1890, at 11 A.M., and will comprise 4,750 chests, viz.—

	Chests.
Opium manufactured at the Patna Factory	2,250
Ditto at the Ghazeepore Factory	2,500
Total ...	4,750

2nd.—The general conditions of the sale now advertised will be the same as usual. The may be ascertained by reference to the Notification issued onthe 26th November 1889, and published in the *Government* and *Exchange Gazettes*, or on personal application at the Office of the Boar of Revenue.

3rd.—The latest dates for deposit and clearance will be the 8th and 18th March 1890, respectively, that is to say no Bank of Bengal Receipts, Government Promissory Notes, or other public securities that may be tendered for deposit in redemption of Promissory Notes given by purchasers in the sale-room will be received after 1-30 P.M. of Saturday, the 8th March 1890 and no Bank of Bengal Receipts in full payment of lots will be accepted afte 3-30 P.M. of Tuesday, the 18th March 1890.

4th.—In addition to the quantity above advertised for sale, the following quantities, more or less, of the Opium manufactured at the Patna and Ghazeepore Factories will be brought to sale in the present year about the dates specified below. The Board of Revenue, however, reserve to themselves the right of altering these dates should circumstances render it expedient to do so :—

DATES.	Manufactured at the Patna Factory, about chests.	Manufactured at the Ghazeepore Factory, about chests.	Total, about chests.
On or about Wednesday, 2nd April 1890. ...	2,250	2,500	4,750
On or about Thursday, 1st May ,, ...	2,250	2,500	4,750
On or about Monday, 2nd June ,, ...	2 250	2,500	4,750
On or about Wednesday, 2nd July ,, ...	2,250	2,500	4,750
On or about Monday, 4th August ,, ...	2,250	2,500	4,750
On or about Monday, 1st September ,, ...	2,250	2,500	4,750
On or about Wednesday, 1st October ,, ...	2,250	2,500	4,750
On or about Monday, 3rd November ,, ...	2,250	2,500	4,750
On or about Monday, 1st December ,, ...	2,250	2,500	4,750
Total ...	20,250	22,500	42,750

By order of the Board of Revenue, L. P.,

K. G. GUPTA, *Offg. Secretary.*

BOARD OF REVENUE, L. P., *Calcutta, the 28th January* 1890.

Statement showing the Importation of Salt (private property) in bond and afloat on the River Hooghly, subject to Customs Duty, on the 31st January 1890.

DESCRIPTION OF SALT.	Government golahs.	Private golahs.	Afloat.	Total.
	Mds.	Mds.	Mds.	Mds.
Liverpool Punga	7,00,485	.....	2,21,730	9,22,215
Bombay Kurkutch	30,986	.....	6,627	37,613
Arabian and Persian Gulfs Kurkutch and Muscat Rock ...	8,11,992	.....	4,180	8,16,172
Aden Kurkutch	1,77,573	.....	90,963	2,68,536
Hamburg salt	99,167	.....	23,696	1,22,863
Total ...	18,20,203	.....	3,47,196	21,67,399

By order of the Board of Revenue, L. P.,
J. SCOBELL ARMSTRONG, *Collector of Customs.*

CUSTOM HOUSE, CALCUTTA, *the 7th February* 1890.

ELECTION OF MUNICIPAL COMMISSIONERS.

NOTIFICATION.

IT is hereby notified for general information that at the bye-election held on the 28th December 1889, in Ward No. IV of the Ranchi Municipality, Baboo Kalipada Ghosh, M.A., B.L, has been elected to be a Commissioner of the said Municipality, under section 27 of the Bengal Act III of 1884.

CHOTA NAGPORE, the 7th February 1890. W. H. GRIMLEY, Commissioner.

NOTIFICATION.

IT is hereby notified for general information that at the election held under section 27 of Act III (B.C.) of 1884 on Monday, the 20th January 1890, Baboo Kumud Nath Dey has been elected a Commissioner for Ward No. IV of the Hooghly and Chinsurah Municipality in the district of Hooghly, *vice* Baboo Shibo Pada Roy Chowdhury, deceased.

N. S. ALEXANDER, *Commissioner.*

BURDWAN COMMR.'S OFFICE, *the 5th February* 1890.

NOTIFICATION.

IT is hereby notified for general information that a bye-election will be held on Monday, the 7th April next, in Ward No. 3 of the Satkhira Municipality, in the district of Khoolna, to elect a Commissioner for that Ward in the place of Baboo Bepin Behari Bose, who has ceased to be a Commissioner under the operation of section 20, Act III (B.C.) of 1884, being absent from six consecutive meetings.

A. BHATTACHARJEE, *Personal Assistant, for Commissioner on tour.*

COMMR.'S OFFICE, PRESY. DIVN., CALCUTTA, *the 10th February* 1890.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 12, 1890.

PART IA.

ers and Notifications by the Government of India, &c.

[*Reprinted from the "Gazette of India."*]

The following order, issued by the Government of India in the Home Department, is republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATION—EDUCATION.

The 1st February 1890.

No. 49.—Under section XII of Act II of 1857, the Governor-General in Council is pleased to authorize the affiliation of the Rajchandra College, Barisal, to the Calcutta University in Arts up to the B.A. Standard and in Law, with effect from the 6th December 1889.

A. P. MACDONNELL,
Secretary to the Govt. of India.

The following order, issued by the Government of India in the Department of Finance and Commerce, is republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATION.

The 7th February 1890.

No. 669.—The following substantive promotions have been made among the Enrolled Officers of the Account Department, with effect from the 16th January 1890, in consequence of Mr. R. A. Sterndale's retirement :—

* * * * * *

Mr. C. G. Vansittart to be Enrolled Officer, class V, and

* * * * * *

E. J. SINKINSON,
Secretary to the Government of India.

The following order, issued by the Government of India in the Military Department, is republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

VOLUNTEER CORPS.

APPOINTMENT.

Fort William, the 7th February 1890.

No. 148.—*Calcutta Volunteer Rifle Corps*—

Mr. Bruce Ellis to be second Lieutenant, *vice* Gough, resigned.

E. H. H. COLLEN,
Secretary to the Govt. of India.

The following order, issued by the Government of India in the Marine Department, is republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

APPOINTMENT.

No. 6.—Navigating Lieutenant E. W. Petley, R.N. (retired), is appointed Port Officer of Calcutta, with effect from the 1st April 1888, the date on which he assumed charge of the duties of that office.

E. H. H. COLLEN,
Secretary to the Govt. of India.

[REGISTERED No. 29.]

No. 8 of 1890.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 19, 1890.

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PART I.

Orders and Notifications by the Lieutenant-Governor of Bengal, the High Court, Government Treasury, &c.

ORDERS BY THE LIEUT.-GOVERNOR OF BENGAL.

No. 165A.

GENERAL.—*The 13th February* 1890.—Baboo Soshi Sikar Dutt, Deputy Magistrate and Deputy Collector, Kandi, Moorshedabad, is allowed leave for two months, under section 370 of the Civil Service Regulations, with effect from the date on which he availed himself of it.

Mr. C. Johnston, Assistant Magistrate and Collector, Moorshedabad, is appointed temporarily to have charge of the Kandi sub-division of that district, during the absence, on leave, of Baboo Soshi Sikar Dutt, or until further orders.

The 15th February 1890.—Mr. C. A. Wilkins, District and Sessions Judge, Bhagulpore, on leave, is appointed to act, until further orders, in the first grade of District and Sessions Judges, with effect from the 18th instant, *vice* Mr. J. R. Hallett.

Mr. C. S. Bayley, Joint-Magistrate and Deputy Collector, is promoted substantively *pro tempore* to the first grade of Joint-Magistrates and Deputy Collectors, with effect from the 28th January 1890, *vice* Mr. F. A. Slack, on deputation, but will continue to be seconded.

Mr. E. B. Harris, Joint-Magistrate and Deputy Collector, Mozufferpore, is promoted substantively *pro tempore* to the first grade of Joint-Magistrates and Deputy Collectors, with effect from the 28th January 1890, *vice* Mr. C. S. Bayley, on deputation.

Mr. W. R. Bright, Assistant Magistrate and Collector, on furlough, is appointed substantively *pro tempore* to be a Joint-Magistrate and Deputy Collector of the second grade, with effect from the 28th January 1890, *vice* Mr. E. B. Harris.

The 18th February 1890.—Mr. T. D. Beighton, District and Sessions Judge, Dacca, is allowed furlough for seven months, under article 340 of the Civil Service Regulations, with effect from the 21st March 1890, or such subsequent date as he may avail himself of it.

Mr. A. E. Staley, Joint-Magistrate and Deputy Collector, is posted temporarily to the Sudder station of the district of the 24-Pergunnahs.

Mr. Staley is appointed to act as District and Sessions Judge of Dacca, during the absence, on furlough, of Mr. T. D. Beighton, or until further orders.

The following officers are appointed provisionally under Statute 33 Vic., Cap. 3, to be Assistant Magistrates and Collectors:—

Rai Nund Kissore Das, Bahadoor, Assistant Superintendent, Tributary Mehals, Cuttack.

Mr. Taheiruddin Ahmed, Barrister-at-Law, Officiating Additional Munsif of Dacca.

Rai Nund Kissore Das, Bahadoor, will continue to act in his present appointment of Assistant Superintendent of the Tributary Mehals, Cuttack, until further orders.

Mr. W. Maude, Officiating Joint-Magistrate and Deputy Collector, Tajpore, Durbhunga, is posted temporarily to the Chota Nagpore Division.

Mr. S. L. Maddox, Assistant Magistrate and Collector, Patna, is appointed temporarily to have charge of the Tajpore sub-division of the Durbhunga district, with effect from the forenoon of the 14th instant.

Mr. J. Windsor, Assistant Magistrate and Collector, Chumparun, is vested with the powers of a Collector under Act X of 1870 in the Bettiah sub-division of that district.

POLICE.—*The 13th February* 1890.—Mr. W. F. S. Allen, Officiating Assistant Superintendent of Police, Hazaribagh, is transferred to the district of Lohardugga, with effect from the date on which he joined his appointment.

The 14th February 1890.—Mr. R. L. Ward, Assistant Superintendent of Police, in charge of the district police of Bogra, is transferred to Pubna, and appointed to have charge of the district police of that district until further orders.

Baboo Jadub Chunder Deb, Assistant Superintendent of Police, 24-Pergunnahs, is transferred to Bogra, and appointed to have charge of the district police of that district until further orders.

Inspector Jiunat Hossein Khan is promoted from the third to the second grade of Inspectors, with effect from the 19th December 1889, *vice* Mr. R. H. Conran, retired.

The 18th February 1890.—In modification of the order dated the 21st January 1890, Mr. C. E. Gouldsbury, District Superintendent of Police, Purneah, is transferred to Julpigoree.

The following reversions of Police Officers are sanctioned:—

With effect from the 23rd January 1890, consequent on the return from leave of Colonel W. L. N. Knyvett, Deputy Inspector-General—

Mr A. H. Giles, Officiating Deputy Inspector-General, to the first grade of District Superintendents.

Mr. W. H. Cornish, Officiating first grade District Superintendent, to the second grade.

Mr. J. B. Goad, Officiating second grade District Superintendent, to the third grade.

Mr. H. Munro, Officiating third grade District Superintendent, to the fourth grade.

Mr. G. B. Havelock, Officiating fourth grade District Superintendent, to the fifth grade.

Mr. F. H. Tucker, Officiating fifth grade District Superintendent, to the first grade of Assistant Superintendents.

Mr. C. C. Plowden, Officiating first grade Assistant Superintendent, to the second grade.

With effect from the 25th January 1890, consequent on the return from leave of Mr. F. Wilcox, second grade District Superintendent—

Mr. A. E. C. Bolst, Officiating second grade District Superintendent, to the third grade.

Mr C. A. Fisher, Officiating third grade, to the fourth grade.

Mr. I. H. W. D. Clark, Officiating fourth grade District Superintendent, and with him Mr. R. F. Guise, Officiating fourth grade District Superintendent, to the fifth grade.

Mr. A. S. Judge, Officiating fifth grade District Superintendent, to the first grade of Assistant Superintendents.

Mr. A. Shuttleworth, Officiating first grade Assistant Superintendent, to the second grade.

JAILS.—*The 18th February* 1890.—Mr. H. M. Owen, Assistant Superintendent of the Bhagulpore Central Jail, is allowed leave for six months, under article 370 of the Civil Service Regulations, with effect from the date on which he may avail himself of it.

REGISTRATION.—*The 15th February* 1890.—Baboo Hari Prasanna Gupta, acting Rural Sub-Registrar of Bhatiyari, in the district of Chittagong, is confirmed in that appointment.

EDUCATION.—*The 18th February* 1890.—Mr. N. L. Hallward, M A., is appointed to be a member of the Bengal Educational Service and is posted as Professor in the Dacca College.

Mr. H. R. James, M. A., is appointed to be a member of the Bengal Educational Service and is posted as Professor in the Patna College.

ZOOLOGICAL.—*The 18th February* 1890.—Colonel J. Waterhouse is appointed to be a member of the Committee of Management of the Zoological Gardens at Alipore.

MEDICAL.—*The 15th February* 1890.—Assistant Surgeon Gunga Gobind Sarkar is appointed temporarily to have medical charge of the civil station of Bogra, with effect from the forenoon of the 3rd December 1889.

The 17th February 1890.—Assistant Surgeon Tamizuddin Ahmed, of the Bengal Provincial establishment, is transferred to the Imperial establishment.

The following notification is republished from the *Assam Gazette*:—

No. 293*R.*—*The 5th February* 1890.—Under the provisions of section 127 of the Assam Land and Revenue Regulation, 1886, the Chief Commissioner invests Mr. H. LeMesurier, Assistant Commissioner, Cachar, with the power to attach and sell moveable property under section 69 of the Regulation.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

REVENUE DEPARTMENT.—(FORESTS.)

NOTIFICATION.

The 4th February, 1890.—Whereas by the notifications severally specified below, the undermentioned forests, situated in the Darjeeling district, were declared to be Reserved forests under the sections of the Indian Forest Act (VII of 1878) recorded against each of them, and whereas the Lieutenant-Governor is not satisfied as to the manner in which enquiries regarding rights in the said forests have been recorded, he is pleased to appoint the Deputy Commissioner of Darjeeling to be the Forest Settlement Officer, who will, under the provisions of Chapter II of that Act, determine the boundaries to be finally laid down, and enquire into and determine the existence, nature, and extent of any rights alleged to exist in favor of any person in, or over, any land comprised within the boundaries specified below, or in, or over, any forest produce to be found therein in cases where claims to such rights are preferred by any individual or community under section 6 of the said Act; and will also himself ascertain, as far as possible, and enquire into the existence of any rights mentioned in sections 4 or 5 of the said Act, within the said boundaries, which are not claimed under section 6, so far as the same may be ascertainable from the records of Government and the evidence of any persons likely to be acquainted with the same; and will otherwise perform the duties of a Forest Settlement Officer under that Chapter.

The Lieutenant-Governor is further pleased, under section 16 of the Indian Forest Act, to appoint the Commissioner of the Rajshahye Division to hear appeals from the decisions of the Forest Settlement Officer as above appointed.

(1) GOOMPAHAR FOREST.

(Includes lands described in notifications under the Indian Forest Act:—Section 34, dated the 23rd January, 1879, as Goompahar forest, exclusive of area mentioned in notification dated the 24th November, 1884 under section 26; section 19, dated the 19th July, 1880, as Pograinbong forest, and section 19, dated the 16th December, 1888 as Goom forest)

Description of boundaries.

North.—The source of the Little Rangit river, (Nepal frontier pillar No. 21 at Mani Bhanjan), down that river till it meets the boundary of the Permaigiri khas land; then a demarcated line eastwards along the southern boundaries of the following lands:—Permaigiri khas land, Mim Tea Estate, Tumsong khas land, Lingia Tea Estate, Khail Tea Estate, Christina Tea Estate, Rishihat khas land, Burbattia khas land to the Kuhil Jhora; then the Kuhil Jhora to the Hill Cart Road.

East.—The Hill Cart Road; then a demarcated line passing round Batasidhara village to the north-west boundary point of the Goom Tea Company's location; along the boundary of that location to the Goompahar ridge; across that ridge to the old (Upper) Goompahar Cart road; along that road to the head of a small jhora tributary to the Bing jhora; and down the small jhora to the south boundary.

South.—A demarcated line separating the forest from the following lands:—Tungsong and Pubong Tea Estates, Palongdong and Pagraingbong khas lands to the Nagri ridge at the head of the Kundongbong jhora; the Silimbong and Chamang Tea Estates, and the lands leased to Atchay Lall Moodi to the Nepal frontier.

West.—The Nepal frontier to the starting point.

(2) SENCHAL FOREST.

(Includes the Senchal, Rangirun, Pachim, Sonada and Rungbul blocks of the Rangnu Tukdah and Senchal forest, notified under section 34 in the notification of the 23rd January, 1879, and the Dooteria forest, notified under section 34 in the notification of same date.)

Description of boundaries.

North-West—From the boundary post on the Bing jhora, up that jhora to the saddle at Jor-bungalow, skirting and excluding the bazar and Raja of Burdwan's land; then down the Rangnu river to its junction with the Senchal jhora.

North-East—Up the Senchal jhora to the Pashok road; then along the Pashok road to the Sureil turning; then up the ridge to Tiger Hill and on to Senchal G. T. S.; then down the main Senchal ridge to the head of the Rishap (or Sureil) spur at the source of the Runum jhora; down that jhora to the old Military road.

South—The old Military road to the Pachim jhora; then a demarcated line to the old cart road trace; then along that trace to its junction with the Darjeeling-Himalayan Railway near the Rungmuk jhora; then the Darjeeling-Himalayan Railway (excluding road location) to the Dooteria spur at the top of Dooteria path; then the north boundary of the Dooteria Tea Estate to the starting point.

Note.—The Kinchintongdhara north and south blocks, which were declared to be Reserved forest in the notification, dated the 30th March, 1886, under section 19 of the Act, also form part of the Senchal forest.

(3) TUKDAH FOREST.

(Includes the Rangirun, Dawaipani, Tukdah, Hoom, Poomong, Runjo (part), Tiger hill, Rangbi and Rishap (part) blocks of the Rangirun, Tukdah and Senchal forest, notified under section 34 in the notification of the 23rd January, 1879, and parts of the additions made to that forest by the notifications under section 19, dated the 25th March, 1881 [parts of the Runjo and Rishap blocks.)]

Description of boundaries.

North—From the point on the Senchal jhora at the south of the land leased to Mr. Wilson, along the eastern boundary of the land so leased to the Rangnu river; the Rangnu river to its junction with the Kejok jhora; then along boundaries of the Charlesfield, mineral springs and Tukdah Tea Estates, and the Tukdah and Lopchu khas lands.

East—A demarcated line separating the forest from the Mangwa, Linding and Hoom khas lands; then from the Rangli Rangliot Tea Estate, and from the Poomong Government land to the Rangjo river; then a continuation of the line up to the Sureil road; then, along that road to a point about a mile from the Sureil bungalow; then a line due south to the top of the Rishap spur.

South—Along the crest of the Rishap spur to the head of the Runum jhora.

West—From the Runum jhora to the Senchal jhora, along the eastern boundary of the Senchal forest.

(4) MAHALDERAM FOREST.

(Includes the Sepoydhura and Chattakpur blocks of the Rangirun, Tukdah and Senchal forest as notified in the notification under section 34, dated the 23rd January, 1879, and part of the additions to the same made by the notifications under section 19, dated the 25th March, 1881, [now known as the Suriel and Mamrim blocks.)]

Description of boundaries.

North—Senchal and Tukdah forests.

East—A demarcated line running due south from a point on the Rishap ridge to the Sureil-Kurseong road; then that road to a point a short distance south of the Reaing river; then a straight demarcated line across the Mamrim valley to a survey point (stone post No. 66) on the Mahalderam-Sitong spur.

South—The Mahalderam-Sitong ridge to the old Military road; then southwards along that road to the north demarcated boundary of the Raja of Burdwan's land; then along that demarcated boundary to the Darjeeling-Himalayan Railway.

West—The Darjeeling-Himalayan Railway to the Runum jhora, excluding locations along the Hill Cart Road.

(5) RANGIT FOREST.

(Includes lands described in notification, dated the 23rd January, 1879, under section 34, as the Badamtam and Seem forests, and the Sumbong and Pashok blocks of the Sumbong, Pashok and Giljong forests.)

Description of boundaries—Badamtam block.

North—The Rangnit and Great Rangit rivers.

East—The Rangnu river.

South—The Rangnu river and the Badamtam Tea Estate.

West—The Badamtam Tea Estate.

Seem block.

North—A demarcated line from the Pusongpung spur to the Sumbong spur.

East and South-east—A demarcated line along the Sumbong spur meeting the boundary of the Sumbong block.

South-West and West—A demarcated line along the Pusongpung spur.

The Sumbong and Pashok blocks.

North—The Great Rangit river.

East—The Teesta river.

South—The Rangiak jhora; then a demarcated line along the boundary of the Pashok Tea Estate; then the Rungbong jhora; then a demarcated line along the boundary of the Lopchu Tea Estate to the Sumbong spur, on which it meets the boundary of the Seem block.

West—A demarcated line following the boundaries of the Glenburn and Sumbong Tea Estate to the Great Rangit river.

(6) MANGWA FOREST.

(Part of the land included in the notification, dated the 23rd January, 1879, under section 34, as the Sumbong, Pashok and Giljong forest.)

Description of boundaries.

North—The Rangiak jhora.

East—The Teesta river.

South—The Rangnu river.

West—A demarcated line along the boundary of the Linding and Mangwa Government waste lands.

(7) REAING FOREST.

(Part of the land included in the notification, dated the 23rd January, 1879, under section 34, as the Sumbong, Pashok and Giljong forest, known as the Rangnu and Reaing blocks, and the Berrik block, forming part of the land so notified as the Sukna-Teesta forest.)

Description of boundaries.

North—The Rangnu river.

East—The Teesta river.

South—The foot-path from the Teesta valley to Mongpu, from the Teesta river to the Reaing river.

West—The Reaing and Rangjo rivers; then a demarcated line forming also the boundary of the lands in the occupation of the Teesta Valley Tea Company.

(8) SITONG AND SIBHOK HILLS FOREST.

(Part of the land included in the notification, dated the 23rd January, 1879, under section 34, as the Sukna-Teesta forest, and known as the Kundong (part), Sitikhola, Numbong, Sitong, Andera, Ruyem, Chawa, Gola and Upper Ghoramara blocks, and an addition to the Kundong block of that forest, notified under section 19 in the notification dated 30th April 1881.)

Description of boundaries.

North—The foot-path from Mongpu to the Teesta Valley, from the Reaing river to the Teesta river.

East—The Teesta river.

South—The Sibhok or Chawa river; then the spur or ridge drained on the north by that river to the Latpunjor spur; then up that spur to Latpanchor, and along the ridge to Sitong.

West—A demarcated line forming the boundary of the land in occupation of the Government Cinchona Department; then the Reaing river.

(9) RILLI FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Nazzeokh and Tunang forests, and part of the Teesta-Cnel forest, notified under section 19 in notification, dated the 17th June, 1881, now known as the Gooling and Ponbu blocks.)

Description of boundaries.

North and West—The Rilli river and the Teesta river.

East—A demarcated line along the ridge from the junction of the Rere Oong with the Rilli river to Tunang; then along a ridge from Tunang to the junction of the Nuboong and Rey Oong rivers; then along the watershed between the Seth and Siok jhoras; then along the watershed between the Door and Siok jhoras to the trigonometrical station at Nazzeokh; then along the watershed between the Gooling and Runeyoth jhoras to the Runeyoth jhora, and southward across that jhora to the ridge forming the watershed between the Runeyoth and Peen jhoras, and along that watershed to Ramtik; then along a spur to the junction of the Ramtik and Pursum jhoras.

South—The Pursum jhora.

(10).—KALIMPONG FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Rinkinpung and Kalimpong forests.)

Description of boundaries.

North.—The Teesta river.

East.—The Tor Chu; then a demarcated line running nearly parallel to the Teesta river at a distance from about half to one mile to the head of the Seerjam Chu; then following a ridge to Rinkinpung trigonometrical station and another spur running in an easterly direction to the Rilli river; then the Rilli river to its junction with the Rere Oong.

South.—The Rilli river.

West.—The Teesta river.

(11).—DUMSONG FOREST.

(Includes the land described in the notification, dated the 23rd January, 1879, under section 34, as the Dumsong forest)

Description of boundaries.

North.—The Rungpo Chu.

East.—A demarcated line on a ridge from the Rungpo Chu passing by Kabu and Pedong hill to the road at Dochung; then along the road from Dochung towards Kalimpong.

South.—A demarcated line running from the Dochung-Kalimpong road to the watershed between the Teesta and Rilli rivers, meeting that watershed about three quarters of a mile south-west of Echa; then generally running first in a northerly and then in a westerly direction to the Tor Chu.

West.—The Tor Chu and the Teesta river.

(12).—RISSOOM FOREST.

(Includes the lands described in the notification dated the 23rd January, 1879, under section 34, notified as the Payong and Mayrong forests, and part [Rissoom and Khempung blocks] of the Khempung forest).

Description of boundaries.

North.—The Dumsong forest; then a demarcated line from the boundary of the Dumsong forest running from the old Pedong-Kalimpong road to the Pakathaw Monastery.

East and South.—A demarcated line along the watershed of the Mayrong Chu and Rushett Chu to a point near Ladam; then the same watershed for about one mile to the head of the Singkánim Chu; then the ridge at the head of the Rilli river to the Labah ridge

South.—The watershed between the Rilli river and the Jeet Chu and Chumung Chu to the head of the Hool Chu.

West.—Down the ridge east of the Hool Chu to the Rilli river; then the Rilli river to its junction with the Singkanim Chu; then a demarcated line to the starting point.

(13).—LOOLAGAON FOREST.

(Includes the lands described in the notification dated the 23rd January, 1879, under section 34, as the Loolagaon forest and part [the Siehoor block] of the Khempung forest, also part [the Pemling, Bokhim, and Chumung blocks] of the Jeet and Chee Chu forest, which was declared to be a Reserved forest under section 19 by the notification of the 28th August, 1882.)

Description of boundaries.

North.—The Rilli river; then the Khempung block of the Rissoom forest to Nunkfoo trigonometrical station.

East and South.—Down the ridge southwards from the Nunkfoo trigonometrical station to a demarcated line continuing westwards from the south-west point of the boundary of the Labah block, Pankasari Reserved forest round the heads of the valleys of the Chumung Chu, Mahaka Chu, Purmagree jhora, and other streams running into the Ghees Nadi, and of the Turoo Oopg, to a point on the watershed of the Rilli river on one side and the Jeet and Lessoo rivers on the other side.

West.—A demarcated line passing west of Rieun trigonometrical station to the Rere Oong, then to the Rungno Chu, and then northwards to the Rilli river, which forms part of the north boundary.

(14).—DHOBIJHORA FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Dhobijhora forest, and the addition to the same gazetted under section 19 in the notification dated the 8th November, 1883)

Description of boundaries.

North.—The Old Kurseong-Darjeeling Military road.

East.—A demarcated line separating the forest from Juman Sing's lands.

South.—A demarcated line separating the forest from the land known as Giddapahar.

West.—A demarcated line to the Old Kurseong-Darjeeling Military road, separating the forest from land of the Castleton Tea Estate; then the Old Kurseong-Darjeeling Military road, excluding the land demarcated out as the Dow Hill Government school location.

(15).—SIBA KHOLA FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Sibakhola forest.)

Description of boundaries.

North-East.—The Sibakhola river.

South.—A demarcated line separating the forest from the lands of the Gayabari Tea Estate and of the Maharajah of Burdwan known as Kurjung.

West.—The Hill Cart Road.

(16).—MANJUA FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Manjua forest [excluding the land described in the notification under section 26 by the notification dated the 18th February, 1882], and the addition to that forest which was declared under section 19 in the notification dated the 10th August, 1883.)

Description of boundaries.

North.—A demarcated line separating the forest from the remainder of the land known as Pinglu Tar.

East.—The Balasan river.

South.—A demarcated line from the junction of the Kalijhora and the Balasan river, separating the forest from the lands in the occupation of the new Fallodhi Tea Estate.

West.—A demarcated line separating the forest from the lands in the occupation of the Singbulli and Murmah Tea Estates.

(17).—KOOHEIN FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Koohein forest.)

Description of boundaries.

North.—A demarcated line from the Mechi river to the south-east corner of the Rangdo Estate, separating the forest from the lands of that estate.

East.—A demarcated line separating the forest from the lands of the Phugurhi Tea Estate.

South.—The Kuhein jhora.

West.—The Mechi river (Nepal frontier).

(18).—MANJHA FOREST.

(Includes the lands describedin the notification, dated the 23rd January, 1879, under section 34, as the Khyrbani and Lohaguree forests; also the lands described in that notification as the Manjha forest with the modifications in the Manjha forest made by the following notifications:—Additions under section 19, by notifications dated 10th August 1883 [9 acres] and dated 26th May, 1886, [1·75 acres]; exclusions under section 26, by notifications dated 18th February, 1882, [34 acres]; 6th June, 1885, [1·75, acres]; 29th December, 1885, [3 acres], and 12th March, 1887, [1·75 acres].

Description of boundaries.

North.—A demarcated line separating the forest from the lands in the occupation of the Tingling Tea Estate; then to a stream tributary to the Potong jhora; then that stream to its junction with the Potong jhora; then the Potong jhora to where the demarcated line separating the lands in the occupation of the new Fallodhi Tea Estate from the forest takes off from that jhora; then the said demarcated line to the Balasan river.

East.—A demarcated line on the Balasan river.

South.—A demarcated line separating the forest from the Balasan block of the Balasan forest, and from the lands in the occupation of the New Terai Tea Association, Indian Terai Tea Company, and Manjha Tea Estate.

West.—The boundary of the Central and Upper Mechi blocks of the Mechi forest; then demarcated lines separating the forest from the lands in the occupation of the Mechi and Lohagarhi Tea Estates to the Mechi river; then the Mechi river.

(19).—MECHI FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Mechi forests [two areas] and a detached area [the Surjbur forest]; also the additions to the Mechi forest made by the notifications under section 19, dated the 12th August, 1880, of the areas named Nipania and Gurabadi).

Description of boundaries.

North.—A demarcated line starting from the Mechi river forming part of the west boundary of the lands in the occupation of the Mechi Tea Estate.

East.—The Lohagurhi block of the Manjha forest; then a demarcated line separating the forest from the lands in the occupation of the Manjha, Morapur and Nipania Tea Estates.

South.—A demarcated line following the boundaries of adjoining jote lands to the Mechi river (Nepal frontier).

West.—The Mechi river (Nepal frontier).

Surjbur block.

North, East and South.—A demarcated line following the boundaries of adjoining jote lands.

West.—The Mechi river (Nepal frontier).

(20).—BALASAN FOREST.

(Includes part of the lands described in the notification dated the 23rd January, 1879, under section 34, as the Balasan and Dulkajhar forest, [the areas now known as the Balasan and Tarabari blocks].

Description of boundaries.

North.—A demarcated line across the Balasan river from Panighatta to the New Terai Tea Company's godown.

East.—A demarcated line separating the forest from lands leased for tea cultivation and from jote lands.

South.—A demarcated line across the New and Old Balasan rivers to the right bank of the latter.

West.—A demarcated line following approximately the right bank of the Balasan river, and forming also the boundary of the Tirihana block of the Pantapari forest; M and M Terai Tea Estate and New Terai Tea Association lands.

(21).—DALKAJHAR FOREST.

(Includes part of the lands described in the notification dated 23rd January 1879, under section 34, as the Balasan and Dalkajhar forest [viz., the areas now known as the Khadma, Taipu, Dalka (part), Central, Lalfa Bagdogra (part), Harlia, Dauhara (part), Bengdubi (part), and Rishabari (part) blocks]; also the additions to that forest made by the notifications under section 19, dated 12th August 1880, of the following lands:—Rishabari, Major Wardroper's and Kanoo Chowdry's jotes [forming parts of the areas now known as the Rishabari, Bagdogra and Bengdubi blocks]; Multa forest [forming the present Multa block and part of the Dalka block]; and the portions of the Bengdubi forest [forming parts of the present Dauhara and Bengdubi blocks].)

Description of boundaries.

North.—A demarcated line from the Rakti Nadi forming the boundaries of Jabra Khadma, Ord-Terai and Tirihana Tea Estates; then by the Tirihana block of the Pantapari forest.

East.—The Pantapari and Boiranti blocks of the Pantapari forest; then the Harlia Nadi.

South.—A demarcated line to the Taipu Nadi; then the Taipu Nadi to its junction with the Kaldor Nadi on the boundary between Sanesi Than and Kishtapur Tea Estates; then the Kaldor Nadi; then a demarcated line to the junction of the Lalfa with the Multa Nadi.

West.—The Multa Nadi; then a demarcated line excluding Jhakuadhura jote and across the Multa Nadi to the Rakti Nadi; then the Rakti Nadi.

Note.—From the area included in the above boundaries, the following jotes are excluded by demarcation:—

(1). Shamlal; (2). Tepua Chamaru; (3). Ragho.

(22).—PANTAPARI FOREST.

(Includes part of the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Balasan and Dalkajhar forest [the portion now known as the Tirihana block]; also part of the lands described in the notification of 12th August 1880 under section 19, as the Bengdubi forest [the portions now known as the Pantapari, Latua Boiranti and Barobhita blocks].)

Description of boundaries.

North.—The Tarabari block of the Balasan forest.

East.—The left bank of the Old Balasan river.

South.—A demarcated line from the left bank of the Old Balasan river to the Harlia Nadi, separating the forest from jote lands.

West.—The Bengdubi and Dauhara blocks of the Dalkajhar forest; then a demarcated line separating the forest from the Tirihana and M and M Terai Tea Estates.

(23).—BAMONPOKRI FOREST.

(Includes the lands described in the notification dated the 23rd January, 1879, under section 34, as the Bamonpokri forest.)

Description of boundaries.

North.—A demarcated line separating the forest from lands known as Mount Pereira.

East.—The Rakti Nadi.

South.—A demarcated line from the Rakti Nadi to the Rangichung Nadi, separating the forest from lands in the occupation of the Marionbari Tea Estate.

West.—The Rangichung Nadi.

(24).—Rakti FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Rakti Forest.)

Description of boundaries.

North.—The Silligori-Pankabari road.

East and South-East.—The eastern branch of the Rakti river.

West.—The Rangichung and Bissurbatti jhoras; then a demarcated line east to the Rangichung jhora; then that jhora; then another demarcated line east to the junction of the two branches of the Rakti river; then the Rakti river.

(25).—LAMAGUMBA FOREST.

(Includes the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Lamagumba Forest.)

Description of boundaries.

North and East.—A demarcated line from the junction of the Chochi jhora with the Rohoni river separating the forest from the lands in the occupation of the Selim Hill Tea Estate.

South.—A demarcated line separating the forest from the lands in the occupation of the Lamagumba Tea Estate.

West.—The Rohoni river.

Note.—From the area described within the boundaries above given is excluded the location of 6 acres, 2 roods, 3 poles, held by the Selim Tea Company.

(26).—SUKNA FOREST.

(Includes a portion of the lands described in the notification, dated the 23rd January, 1897, under section 34, notified as the Sukna-Teesta forest, now known as the Kuklong, Sukna, Rungdung, Kynanuka, Adulpur and Chamta blocks.)

Description of boundaries.

North.—A demarcated line starting from the point of the Gumti on the Hill Cart Road at the head of the Kuklong Nadi along the Hill Cart Road for a short distance, and then across the Rungdung valley to the junction of the Chibla Khola with the Punchanai river, the whole forming the boundary between the forest and the lands in the occupation of the Sepoydhura Tea Estate.

East.—The Panchanai river to the north-east point of the Kynanuka jote boundary; then a demarcated line along the boundaries of that jote round to the Sukna trigonmetrical station on the Hill Cart Road; then the Hill Cart Road to a point near Methibari.

South.—A demarcated line separating the forest from Methibari and Chamta Tea Estates to the Chamta Nadi.

West.—The Chamta Nadi to the Sukna-Adulpur road; then a demarcated line to the Kuklong Nadi skirting the village lands of Kynanuka; then the Kuklong Nadi, which separates the forest from the lands in the occupation of the Terai Tea Company, Terai Tea Association, and Selim Hill Tea Estate.

(27) —MAHANADI FOREST.

(Includes a portion of the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Sukna-Teesta forest, now known as the Pundig, Mahanadi, Mohurgong, Hatisurra and Panchanai blocks.)

Description of boundaries.

North.—A demarcated line from the Panchanai river to the Mahanadi river, separating the forest from the lands in the occupation of the Narbong Tea Estate.

East.—The Mahanadi river to the Sukna-Teesta road crossing.

South.—A demarcated line along that road to the Panchanai river.

West.—The Panchanai river.

(28).—CHAMPASARI FOREST.

(Includes a portion of the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Sukna-Teesta forest, now known as the Gulma, Singimari, Upper Champasari and Lower Champasari blocks.)

Description of boundaries.

North.—The Sukna-Sibhok forest road from the Mahanadi river to the Gulma river.

East.—The Gulma river to the Sukna-Teesta road crossing at Champasari.

South.—A demarcated line along the Sukna-Teesta road to the Mahanadi river.

West.—The Mahanadi river.

(29).—CHOKLONG AND LATPANCHOR FOREST.

(Includes a portion of the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Sukna-Teesta forest now known as the Lower Ghoramara, Gulma valley, Choklong, Jogijhora, Kuhi, Bandarjhola, Mana (part) and Latpanchor blocks; also the lands gazetted under section 19, in the notification, dated the 12th August, 1880, as the Manering forest, now forming part of the Mana block.)

Description of boundaries.

North.—A demarcated line along the Mamrim ridge from the north-east point on the boundary of the Mahalderam Tea Estate to Sitong Hill.

East.—The Mimbong and Sitong blocks of the Sitong forest, and the Upper Ghoramara and Chawa blocks of the Sibhok Hill forest; then the boundary between Darjeeling Hills and Terai pergunnahs to the Sukna-Sibhok forest road.

South.—The Sukna-Sibhok forest road, from the Ghoramara Nadi to the Mahanadi river.

West.—The Mahanadi river and Manajhora; then a demarcated line forming part of the east boundary of Mahalderam Tea Estate.

(30).—SIBHOK FOREST.

(Includes a portion of the lands described in the notification, dated the 23rd January, 1879, under section 34, as the Sukna-Teesta forest, now known as the Janaikuri, Somardanga, Sibhok North, Sibhok East, Sibhok West, and part of the Shilibhita blocks; also the lands gazetted under section 19, in the notification, dated the 12th August, 1880, as the Shilibhita forest, now forming part of the Shilibhita block.)

Description of boundaries.

North.—The Sibhok or Chawa river.

East.—The Teesta river along the boundary between the Darjeeling and Julpigori districts.

South.—The Janaikuri Nadi; then a demarcated line to the junction of the Jial jhora with the Ghoramara Nadi; then the Ghoramara Nadi to its junction with the Gulma river.

West.—The Gulma river to the Sukna-Sibhok forest road; then the boundary between Darjeeling Hills and Terai pergunnahs to the Sibhok river.

P. NOLAN,
Secretary to the Govt. of Bengal.

REVENUE DEPARTMENT—(OPIUM).

NOTIFICATION.

The 17th February, 1890.—It is hereby notified that at the examination for admission into the Opium Department held simultaneously at Calcutta and Allahabad in January, 1890, in pursuance of the notification dated the 5th October, 1889, the following candidates passed and obtained the highest aggregate of marks :—

(1) Mr. Albert Datta.
(2) „ Alfred Burt.
(3) „ A. H. Biss.
(4) „ J. E. Powell.

These gentlemen will be appointed to fill vacancies in the Opium Department as they occur, according to the order in which their names appear. The last named will, however, be appointed after the native gentleman to be selected by the Lieutenant-Governor has been appointed, as stated in paragraph 7 of the above-quoted notification.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 17th February 1890.—The Lieutenant-Governor directs, under section 101 of the Bengal Tenancy Act VIII of 1885, that a survey shall be made and a record of rights prepared in respect of all lands included in the boundaries of the following estate in the district of Nuddea :—

Name of estate.	Situation in pergunnah.
841, Chur Goalgram.	Shahanjial.

The particulars to be recorded in the survey and record of rights shall be the following :—

1. The name of each tenant.
2. The class to which he belongs : that is to say, whether he is a tenure-holder, ryot holding at fixed rates, occupancy ryot, non-occupancy ryot or under-ryot; and if he is a tenure-holder, whether he is a permanent tenure-holder or not, and whether his rent is liable to enhancement during the continuance of his tenure.
3. The situation, quantity and boundaries of the land held by him.
4. The name of his landlord.
5. The rent payable.
6. The mode in which that rent has been fixed, whether by contract, by order of a Court, or otherwise.
7. If the rent is a gradually increasing rent, the time at which, and the steps by which, it increases.
8. The special conditions and incidents, if any, of the tenancy.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 17th February 1890.—With reference to the Government notification dated the 17th February 1890, published in the *Calcutta Gazette* of the 19th February 1890, the Sub-divisional Officer of Kushtea is hereby appointed under rule 1, Chapter VI of the rules made by Government under the Bengal Tenancy Act, to be the Settlement Officer of Estate Goalgram, No. 841, in the district of Nuddea.

P. NOLAN,
Secretary to the Govt. of Bengal.

DECLARATION.

The 17th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for the Sherpur Town Post Office in the village of Sherpur, pergunnah Sherpur, zillah Mymensingh, it is hereby declared that for the above purpose a piece of land measuring, more or less, 1 bigah 13 cottahs and 4 chittacks of standard measurement, bounded on the north by a ditch and unoccupied homestead land of Har Kumar Chaudhri; on the south by a drain and a road belonging to Krisna Chandra Patranavis; on the west by a Municipal tank and the school compound; and on the east by a drain and a road belonging to Krisna Chandra Patranavis, is required within the aforesaid village of Sherpur.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

P. NOLAN,
Secy. to the Govt. of Bengal.

JUDICIAL DEPARTMENT.

No. 166A.

The 12th February 1890.—Baboo Satkari Haldar, B.L., is appointed to act as a Munsif in the district of the 24-Pergunnahs, to be ordinarily stationed at the Sudder station of that district, during the absence, on leave, of Baboo Revati Churn Banerjee, or until further orders.

The 15th February 1890.—Baboo Amar Chunder Mukerjee, Munsif of Palamow, in the district of Lohardugga, is vested with the powers of a Magistrate of the second class.

The orders of the 22nd and the 25th January 1890, published in the *Calcutta Gazette* of the 29th idem, granting Baboo Gopi Krishna Banerjee, Munsif of Bagirhat, in the district of Jessore, leave on medical certificate for two months, and appointing Baboo Satkari Haldar, B.L., to act as Munsif of Bagirhat, are cancelled.

Baboo Ananta Ram Ghose, Munsif of Gya, is appointed to act as Subordinate Judge of Dinagepore, during the absence, on leave, of Baboo Hara Gobind Mukerjee, or until further orders.

Baboo Ananta Ram Ghose is vested with the powers of a Munsif, and with those of a Judge of a Court of Small Causes for the trial of suits cognizable by such a Court up to the value of Rs. 100 within the local limits of the Sudder Munsifi of Dinagepore.

Baboo Gopal Chunder Mukerjee, B.L., is appointed to act as a Munsif in the district of Gya, to be ordinarily stationed at the Sudder station, during the absence, on deputation, of Baboo Ananta Ram Ghose, or until further orders.

Baboo Shanta Nath Bhattacharjea is appointed to be an Honorary Magistrate of the Independent Bench at Nattore, in the district of Rajshahye, and is vested with the powers of a Magistrate of the third class.

Moulvie Obedullah is appointed to be an Honorary Magistrate of the Perozepore Bench, in the district of Backergunge, and is vested with the powers of a Magistrate of the third class.

The Lieutenant-Governor accepts the resignation tendered by Sayed Habibar Rahman of his appointment as an Honorary Magistrate of the Perozepore Bench, in the district of Backergunge.

Baboo Prosonno Chundra Chackravarti is appointed to be an Honorary Magistrate of the Gaibanda Bench, in the district of Rungpore, and is vested with the powers of a Magistrate of the third class.

Baboo Tulsi Dass Mukerjee, Sub-divisional Magistrate, Nilphamari, in the district of Rungpore, is vested, under section 407 of the Code of Criminal Procedure, with powers to hear appeals from convictions by Subordinate Magistrates of the second and third classes.

The 17th February 1890.—Baboo Monmohun Chakravarti, Temporary Deputy Magistrate and Deputy Collector, Pooree, is vested with the powers of a Magistrate of the first class.

The 18th February 1890.—Baboo Tara Prosonno Das, B.L., is appointed to act as a Munsif in the district of Midnapore, to be ordinarily stationed at the Sudder station, during the absence, on leave, of Baboo Kanti Chandra Bhaduri, or until further orders.

Baboo Jogesh Chunder Mookerjee, Officiating Sub-Deputy Collector, Madhubani, Durbhunga, is vested with the powers of a Magistrate of the third class.

Under the authority vested in him by the final clause of section 357 of the Code of Criminal Procedure, Act X of 1882, the Lieutenant-Governor empowers Moulvie Karam Hossein, Officiating Deputy Magistrate, Durbhunga, to take down evidence in criminal cases in the English language.

Baboo Amrita Lal Pal, Subordinate Judge of Gya, is allowed leave for two days under article 306(*b*) of the Civil Service Regulations, in extension of the leave granted to him under the order of the 4th April 1889.

GRANT OF LEAVE TO MUNSIFS.—*The 14th February* 1890.—Baboo Kanti Chandra Bhaduri, Munsif of Midnapore, is allowed leave for two months, under article 306 (*b*) of the Civil Service Regulations, with effect from the 1st February 1890.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATION

The 18th February 1890.—It is hereby notified that under the provisions of section 641 of the Code of Civil Procedure (Act XIV of 1882), the Lieutenant-Governor exempts Maharajah Girija Nath Roy of Dinagepore from personal attendance in Civil Courts.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT, BENGAL.

IRRIGATION.

The 17th February 1890.

No 43.—*Notification.*—With reference to Bengal Government Resolution, No. 238*I.A.*, dated the 11th February 1890, appointing a Commission to enquire into certain matters relating to the "Circular and Eastern Canals," and to notification No. 350, dated the 17th September 1889, imposing certain tolls at Khoolna on boats using that route, *it is hereby notified* that the last quoted notification above is cancelled. Final orders on the points under enquiry, which include "the boundaries within which tolls are levied," will be issued subsequently.

No 44.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for constructing a retired line of embankment in the village of Sreenagore, taruf Bansra, pergunnah Medunmull, zillah 24-Pergunnahs, it is hereby declared that for the above purpose a piece of land 2,140 feet long, 132 feet broad, measuring, more or less, 19 bighas 12 cottahs and 5 chittacks of standard measurement, bounded on the north and south by the Government embankment, and east and west by the paddy lands of Baboos Radha Mohun Banerjee and Tarruck Nath Banerjee, is required within the aforesaid village of Sreenagore.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

No. 45.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for constructing a retired embankment in the village of Jehanabad, taraf Bonomallypore, pergunnah Medunmull, zillah 24-Pergunnahs, it is hereby declared that for the above purpose a piece of land 820 feet long, 135 feet broad, measuring, more or less, 7 bighas 13 cottahs and 12 chittacks of standard measurement, bounded on the north and south by the lands of Baboos Bussonto Kumar Roy Choudry and others of Baripore, and east and west by the Government embankment, is required within the aforesaid village of Jehanabad.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

No. 46—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for constructing a retired embankment in the villages of Bahadurpore and Banitola, pergunnah Mooragatcha, zillah 24-Pergunnahs, it is hereby declared that for the above purpose a piece of land 2,267 feet long and 120 feet broad, measuring, more or less, 18 bighas 17 cottahs and 13½ chittacks of standard measurement, bounded on the north, south, and west by the paddy lands of the estate of late Baboo Harraprosaud Choudry, and east by the paddy lands of the above named Choudry and Government embankment, is required within the aforesaid villages of Bahadurpore and Banitola.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

ESTABLISHMENT.

The 17th February 1890.

No. 47.—The following extract from a notification by the Government of India, Public Works Department, is republished for information :—

No. 78, dated the 14th February 1890.—Public Works Department Notification No. 397, dated 20th December 1889, is cancelled.

The following promotions and reversions are made in the Superior Accounts, Branch :—

NAMES.	FROM	TO	WITH EFFECT FROM
Lieut.-Col. H. R. LeM. Carey, s.c.	Examiner, Class IV, grade I temporary.	Examiner, Class IV, grade I, permanent.	8th November 1889.
Mr. W. E. Curry	Deputy Examiner, 1st grade, *sub pro tem.*	Deputy Examiner, 1st grade, permanent.	8th November 1889.

No. 49.—The following notifications by the Government of India, Public Works Department, are republished for information :—

No. 64, dated the 8th February 1890.—*Corrigendum*—In notification No. 390, dated the 13th December 1889, appointing Mr. H. Martindell and Baboo Nogendra Nath Mookerjee, passed students, Seebpore College, to the Public Works Department, *for* Apprentice Engineers, *read* Assistant Engineers, third grade.

No. 72, dated the 11th February 1890.—Mr. A. Greenlees, Assistant Engineer, first grade, State Railways, is permitted at his own request to resign his appointment in the Public Works Department.

No. 75, dated the 12th February 1890.—Mr. E. J. Neuville, Deputy Examiner of Accounts, attached to the office of the Examiner of Public Works Accounts, Burma, is granted furlough out of India for two years, under Article 371 of the Civil Service Regulations.

The 18th February 1890.

No. 50.—Mr. H. Barlow, Assistant Engineer, Buxar Division, is transferred to the Office of the Superintending Engineer, Sone Circle, with effect from the afternoon of the 3rd instant.

No. 51.—*Promotions.*—The Lieutenant-Governor is pleased to make the following promotion and reversions in the Engineer Establishment with effect from the dates specified :—

Names.	From	To	With effect from	Nature of promotion.
Mr. J. P. Coy ...	Assistant Engineer, 1st grade.	Executive Engineer, 4th grade.	30th Nov. 1889 ...	*Sub pro tem.*
„ W. B. Gwyther ..	Executive Engineer, 4th grade, *sub pro tem.*	Executive Engineer, 4th grade (temporary rank).	Ditto ...	Reversion.
„ W. H. Rushton ...	Executive Engineer, 4th grade (temporary rank).	Assistant Engineer, 1st grade.	Ditto ...	Ditto.
„ M. H. Arnott ...	Ditto ditto ...	Ditto ditto ...	3rd Dec. 1889 ...	Ditto.
„ W. A. Inglis ...	Executive Engineer, 2nd grade, *sub pro tem.*	Executive Engineer, 3rd grade.	19th Dec. 1889 ...	Ditto.
„ A. S. Thomson ...	Executive Engineer, 3rd grade, *sub pro tem.*	Executive Engineer, 4th grade.	Ditto ...	Ditto.
„ T. Butler ...	Executive Engineer, 4th grade, *sub pro tem.*	Executive Engineer, 4th grade (temporary rank).	Ditto ...	Ditto.
Rai Sahib Kirth Chunder Chowdry.	Executive Engineer, 4th grade (temporary rank).	Assistant Engineer, 1st grade.	Ditto ...	Ditto.

IRRIGATION.

The 18th February 1890.

No. 53.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for constructing a retired line of embankment at Chatiani, it is hereby declared that for the above purpose a piece of land having an aggregate length of about 4,200 feet by 88½ feet in breadth, measuring, more or less, 25 bighas 15 cottahs and 13 chittacks of standard measurement in the village of Chatiani, pergunnah Plassey, district Moorshedabad, is required.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

No. 54.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for repairing the Bhagirathi embankment at the Baharamgunge Cut in the 38th mile, it is hereby declared that for the above purpose 2 pieces of land measuring, more or less, 10½ cottahs of standard measurement in the village of Baharamgunge, pergunnah Ashudnagore, district Moorshedabad, are required.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

No. 55 —*Declaration*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz for constructing the lower junction retired line of embankment at Mohula, it is hereby declared that for the above purpose a piece of land having an aggregate length of about 3,120 feet by 108 feet in breadth, measuring, more or less, 23 bighas 7 cottahs and 14 chittacks of standard measurement, in the village of Mohula, pergunnah Choonakhally, district Moorshedabad, is required.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Government of Bengal.

RAILWAY.

The 17th February 1890.

No. 48.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the public expense for a public purpose, viz., for a stone-quarry for the Bengal Northern Railway Company, in the village of Kadomdih, pergunnah Patkun, zillah Manbhoom, it is hereby declared that for the above purpose a piece of land measuring, more or less, 14 bighas 14 cottahs and 10 chittacks, or

equivalent to 4 acres 3 roods and 19 poles (English measure) of standard measurement, bounded on the—

West—By waste land of Kadomdih,
North—By cultivated land,
East—By waste land,
South—By waste and cultivated land of Kadomdih,

is required within the aforesaid village of Kadomdih.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

The 18th February 1890.

No. 52.—It is hereby notified, under section 4 of Act X of 1870, to all whom it may conern, that a survey for a line of railway is about to be made from Sini station on the Bengal-Nagpore Railway in the district of Manbhoom to Howrah, passing near the following places:—

In the Manbhoom district.

Goomharia.		Moholia.
Jugsoli.		Ghatsila.
Domjori.		Narsingurh.
	Chakulia	

In the Midnapore district.

Ektal.		Soosooma.
Gopalpoor.		Midnapore.
Jhargoon.		Boli Chuk.
Dhangoram.		Punch Kura.
	Kola Ghat.	

In the Howrah district.

Bagnan.		Baoria.
Moiskrika Ghât.		Rajgung Hat...
Rajapoor Haut.		Echapoor.
	Howrah.	

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT,—(MARINE.)

NOTICE.

The 13th February 1890.—Persons intending to make a pilgrimage to Mecca are hereby informed that information has been received by the Government that great distress is at present prevailing in the surrounding country owing to the scarcity of food, consequent upon the want of a sufficient rainfall during the last three years, and that, owing to the forlorn condition of the people, assaults on travellers and merchants on the Jeddah and Mecca roads are now of frequent occurrence.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

NOTIFICATION No. 43Mne.

The 17th February 1890.—In exercise of the powers conferred upon him by section 4, sub-section (1), clause (*b*) of Act X of 1889 (The Indian Ports Act), and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to extend the provisions of section 32 of the said Act to the navigable rivers and channels leading to the port of Calcutta as defined in the notification of this Government, dated the 24th June 1886.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

NOTIFICATION No. 44Mne.

The 18th February 1890.—A competitive examination for admission of one locally selected candidate into the Bengal Pilot Service will be held at the Port Office on the 31st of March 1890, in accordance with the regulations published in the *Calcutta Gazette* of the 24th June 1885, Part I, page 610, and subsequently modified under notification No. 88Mne., dated the 18th June 1889, published at page 526, Part I of the *Calcutta Gazette* of the 19th idem.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

[First Publication]

NOTIFICATION No. 41Mne.

The 17th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R E.,
Secretary to the Government of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 21).

BAY OF BENGAL.

BURMA COAST.

Regarding Savage island light; and a white light on Fakir Point.

IN continuation of Notice to Mariners, Nos. 17 and 18, respectively dated the 4th February 1890, information has been received from the Port Officer, Rangoon, that the transferring of the light on Savage island to the temporary structure having been completed, that light will be exhibited as before. A white light will also be shewn from Fakir Point to guide vessels leaving or entering the port at night.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 15th February* 1890.

[First Publication.]

NOTIFICATION No. 42Mne.

The 17th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Secretary to the Government of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT,—(MARINE).

NOTICE TO MARINERS (No. 22).

BAY OF BENGAL.

ORISSA COAST.

Inner bar buoy replaced in position.

IN continuation of Notice to Mariners, No. 2, dated the 4th January 1890, issued by this Office, information has been received from the Collector of Customs, Balasore, that the Inner bar (red) buoy has been replaced in position.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 15th February* 1890.

[Second Publication.]

NOTIFICATION No. 31Mne.

The 4th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 17).

BAY OF BENGAL.

BURMA COAST.

Alteration of light on Savage Island—port of Akyab.

IN continuation of Notice to Mariners, No. 14, dated the 27th January 1890, issued this Office, information has been received from the Port Officer, Akyab, that the light Savage island will be obscured from the 27th idem, preparatory to its removal to temporary structure, and will be re-exhibited after 10 to 15 days. During this peric blue light will be burnt every ½ of an hour.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 4th February* 1890.

[Second Publication.]

NOTIFICATION No. 32Mne.

The 4th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 18).

BAY OF BENGAL.

BURMA COAST.

Blue lights on Savage island discontinued.

IN continuation of Notice to Mariners No. 17, dated the 4th instant, a telegraphic communication has been received from the Port Officer, Akyab, that the blue lights on Savage island were discontinued from the 2nd idem.

By direction of the Government of Bengal,

OLIVER LASH, B.P.,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 4th February* 1890.

[Second Publication.]

NOTIFICATION No. 38Mne.

The 11th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Secy. to the Govt of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT,—(MARINE).

NOTICE TO MARINERS (No. 19).

CHINA SEA.

SINGAPORE, WESTERN APPROACH—SALAT SINKI.

Bell buoy withdrawn; and a light-vessel moored on Ajax shoal.

THE British Admiralty has given notice (No. 23 of 1890) that on 1st February 1890 a light-vessel will be moored on Ajax shoal, west side of Salat Sinki, western approach to New harbour, Singapore:—

The light will be a *flashing* white light, showing a *flash every thirty seconds*; it will be elevated 38 feet above the sea, and should be visible in clear weather from a distance of 10 miles.

The light-vessel will be painted yellow, with the word *Ajax* in white letters on a black ground on her sides. She will carry a caged ball, painted red, at the masthead, as a day mark.

Position, lat. 1° 13′ 55″ N., long 103° 40′ 20″ E.

Also, that on the same date, the Bell buoy now marking Ajax shoal will be withdrawn.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 10th February* 1890.

[Second Publication.]

NOTIFICATION No. 39Mne.

The 11th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 20).

BAY OF BENGAL.

CHITTAGONG COAST.

Spar buoy replaced temporarily.

INFORMATION has been received from the Port Officer, Chittagong, that the Spar buoy referred to in Notice to Mariners No. 28, dated 18th March 1889, having sunk, a second class iron buoy has been laid down off the western edge of the sand in about 6½ fathoms low water; lat. 21° 31′ North, long. 91° 39′ East: Chart No. 859.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 10th February* 1890.

[Third Publication]

NOTIFICATION No. 29Mne.

The 3rd February 1890.—The following Notice to Mariners is published for general information.

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 16).

BAY OF BENGAL.

ORISSA COAST.

Date of exhibition of new light from Chandipore flagstaff.

IN continuation of Notice to Mariners, No. 49, dated the 31st May 1889, issued by this Office, it is intended to exhibit the new light on the Chandipore flagstaff from the 1st May 1890.

The height of the new light above high-water mark will be 62 feet.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 30th January* 1890.

Detailed account of Security deposit held by the Comptroller-General on the 31st December 1889 on account of Examiner, Public Works Accounts, Bengal, published in conformity with Government of India, Public Works Department, order dated 28th May 1880.

LOAN.	Stock held by the Comptroller-General.	Government Promissory Notes held by the Comptroller-General in safe custody.	Total.
	Rs	Rs.	Rs.
Government Promissory Notes of 4 per cent. of 1865 and other years.	56,900	25,200	82,100

Detailed account of Security deposits held by the Comptroller-General on the 31st December 1889.

NAMES OF DEPOSITORS.	Amount of investment, of 4 per cent. of 1865 and other years.	Names of the officers to whom the interest is sent.
First Calcutta Division.	Rs.	
Kasee Nath Mookerjee, Cashier ..	2,000	Executive Engineer, First Calcutta Division.
Boikonto Nath Ghosal, Sircar ...	500	Ditto, ditto.
Kalipodo Mookerjee, Store keeper ...	500	Ditto, ditto.
J. A. Catchick, ditto ...	1,200	Ditto, ditto.
Second Calcutta Division.		
Chuni Lal Dass	2,000	Ditto, Second Calcutta Division.
Calcutta Workshop.		
Tarak Nath Banerjee, Cashier ...	2,000	Superintendent, Calcutta Workshop.
Beman Bihary Sircar	500	Ditto, ditto.
Kanti Chundra Mukerjee	2,000	Ditto, ditto.
Bindabon Sye Duffadar	100	Ditto, ditto.
Burrakur Iron Works.		
Amulya Nath Mookerjee, Cashier ...	2,000	Superintendent, Burrakur Iron Works.
Burdwan Division.		
Charoo Chundro Mitter, Cashier ...	2,000	Executive Engineer, Burdwan Division.
Chota Nagpore Division.		
Ashutosh Mookerjee, Cashier ...	2,000	Executive Engineer, Chota Nagpore Division.
Dacca Division.		
Devendro Nath Singha, Cashier ...	2,000	Executive Engineer, Dacca Division.

NAMES OF DEPOSITORS.	Amount of investment of 4 per cent. of 1885 and other years.	Names of the officers to whom the interest is sent.
Northern Drainage and Embankment Division.	Rs.	
Ashutosh Banerjee, Cashier	2,000	Executive Engineer, Northern Drainage and Embankment Division.
Paly Churn Pyne	500	Ditto, ditto.
Shaik Munnoo, Duffadar	100	Ditto, ditto.
Circular and Eastern Canals.		
Tara Prossonna Dutta, Cashier ...	2,000	Executive Engineer, Circular and Eastern Canals Division.
Nuddea Rivers.		
Raj Mohan Roy, Cashier	2,000	Executive Engineer, Nuddea Rivers.
Cossye.		
Bipin Bihari Dutt, Cashier	2,000	Executive Engineer, Cossye Division.
Hurry Prosonno Chatterjee, Store-keeper...	1,000	Ditto, ditto.
Dehree Workshop.		
Kedar Nath Chatterjee, Cashier ...	2,000	Executive Engineer, Dehree Workshop.
Hodges, Radford, Contractor ...	500	Ditto, ditto.
Arrah Division.		
Gonga Dhur Bhuttacharjee, Cashier ..	2,000	Executive Engineer, Arrah Division.
Nundo Gopal Chatterjee, ditto ...	2,000	Ditto, ditto.
Ganado Prosad Gangooly, ditto ...	1,000	Ditto, ditto.
Buxar Division.		
Bama Churn Banerjee, Cashier ...	1,000	Executive Engineer, Buxar Division.
Raj Koomer Banerjee, ditto ...	2,000	Ditto, ditto.
Sarodaprosad Ghosh, ditto ...	1,000	Ditto, ditto.
Eastern Sone Division.		
Kally Das Dey, Cashier ...	2,000	Executive Engineer, Eastern Sone Division.
Keshub Lal Banerjee, ditto ...	1,000	Ditto, ditto.
Gunduck Division.		
Prosonno Coomar Mitter, Cashier ...	1,500	Executive Engineer, Gunduck Division.
Mahanuddy Division.		
Sham Shundur Shahoo, Cashier ...	1,700	Executive Engineer, Mohanuddy Division.
Brahmini-Byturni Division.		
Bijoy Gopal Ghose, Storekeeper ...	500	Executive Engineer, Brahmini-Byturni Division.
Syed Mufuzul Rohomun, Cashier ...	2,000	Ditto, ditto.
McNeill & Co.	2,000	Ditto, ditto.
Revenue Superintendent, Orissa.		
C. H. Romaniah Naidoo, Head Clerk ...	1,000	Revenue Superintendent, Orissa.
Revenue Superintendent, Midnapore.		
Rakhal Dass bose, Tehsildar ...	200	Revenue Superintendent, Midnapore.
Collector and Supervisor of Tolls, Calcutta Canals.		
Sreedhur Chunder Gangooly, Darogah ...	500	Toll Collectors, Calcutta Canals.
Ashutosh Sen, ditto ...	1,000	Ditto, ditto.
Jogendra Nath Bose, ditto ...	1,000	Ditto, ditto.
Pasupati Banerjee, ditto ...	1,000	Ditto, ditto.
Office of Examiner, Public Works Accounts, Bengal.		
Budun Behary Chatterjee, Sircar ...	100	Examiner, Public Works Accounts, Bengal.
Toll Collector, Nuddea.		
Nil Madhub Chakravati	500	Toll Collector, Nuddea.
Balasore Division.		
Jadunath Ghosh, Cashier	1,000	Executive Engineer, Balasore Division.
Total ...	56,900	

Detailed account of Government Promissory Notes held by the Comptroller-General in safe custody.

NAMES OF DEPOSITORS.	Amount of investment of 4 per cent. of 1865 and other years.
	Rs.
First Calcutta Division.	
McNeill and Company	1,000
Atkinson Brothers	1,000
Gopal Chundra Haldar	600
Rai Gungabistu Roy, Bahadoor	5,000
Second Calcutta Division.	
J. B. Norton	100
Calcutta Workshop.	
Chundra Coomar Lahiri	400
Joggo Nath Prosad Sing	200
Kristo Nath Ghosh and Woomesh Chundra Ghosh	400
Bepin Gopal Mitter	200
Beman bihari Sircar	1,500
Bengal Coal Company, Limited	200
Burdwan Division.	
Kedar Nath Lahiri	200
Aghore Chundra Gangooly	200
Preonath Ghosh	500
Mehar Lal Das	500
Sreemonto Haldar, Nabin Chundra Bhattacharjee, and Sree Nath Sircar	500
Dacca.	
Bengal Stone Company, Limited	1,100
Preo Nath Ghosh	1,100
Circular and Eastern Canals.	
Nilkunto Chatterjee	500
Chittagong Division.	
Nogendro Coomar Sen	500
Brahmini-Byturnee Division.	
Managing Agent, India General Steam Navigation Company ...	2,000
Cossye Division.	
Hoare, Miller and Company	2,000
Balasore Division.	
Hoare, Miller and Company	3,000
Schœne, Kilburn and Company	1,500
Nuddea Rivers.	
Preo Nath Ghosh	1,000
TOTAL ...	25,200

H. LEM. CAREY, *Lieut.-Col*, B.S.C.,
Examiner, Public Works Accounts, Bengal.

JAIL DEPARTMENT.

No. 1468.—*The* 14*th February* 1890.—Dr. Picachy made over charge of the Purneah Intermediate Jail to Surgeon D. G. Crawford on the forenoon of the 3rd February 1890.

A. D. LARYMORE,
Offg. Inspector-General of Jails, Bengal.

CIVIL MEDICAL DEPARTMENT, BENGAL.

No. 1522.—*The* 11*th February* 1890.—Medical Department Notification No. 89, dated 4th January 1890, published in the *Calcutta Gazette* dated 8th ultimo, is cancelled.

A. HILSON, M.D.,
Inspector-General of Civil Hospitals, Bengal.

TREASURY NOTICE.

DEPUTY COLLECTOR BABOO NAGENDRA NATH GUPTA has been placed in charge of the Rajshahye Treasury and authorized to draw bills on other Treasuries.

HARI MOHON CHANDRA, *Personal Assistant.*

COMMR.'s OFFICE, RAJSHAHYE DIVISION, JULPIGORI, *the* 15*th February* 1890.

EDUCATION DEPARTMENT, BENGAL.

Subordinate Educational Service.

The 14*th February* 1890.—Babu Rasamay Mitra, M.A., Second Master of the Hoogly Collegiate School (substantive *pro tempore* in class V), is appointed substantively to that class, with effect from the 26th August 1889, *vice* Babu Gauri Sankar Ghosal, deceased

Babu Mahendra Lal Ghosh, Head Clerk in the office of the Inspector of Schools, Presidency Circle (class VI and officiating in class V), is appointed substantive *pro tempore* in class V, with effect from the 26th August 1889, *vice* Babu Ram Prakash Lal, promoted.

Babu Hari Nath Sen, B.A., Deputy Inspector of Schools, Nuddea (class VI and officiating in class V), will continue to officiate in class V, with effect from the 26th August 1889, *vice* Babu Hari Har Das, promoted.

Babu Golak Chandra Chakravarti, Third Master of the Krishnagar Collegiate School (class VI), is appointed to act in class V, with effect from the 18th November 1889, *vice* Babu Upendra Nath Maitra, promoted.

Babu Bhagwan Chandra Dutt, B.A., Third Master of the Patna Collegiate School, is appointed to act in class V, with effect from the 21st December 1889, *vice* Babu Debendra Nath Mookerjea, *seconded.*

Babu Uma Charan Ghosh, Second Master of the Comillah Zillah School (class VI), is appointed to act in class V, with effect from the 30th December 1889, *vice* Babu Girish Chandra Nag, on privilege leave.

Babu Nanda Lal Das, B.A., Third Master of the Howrah Zillah School (class VII), acted in class VI from the 21st June to the 5th August 1889, both days inclusive, *vice* Babu Bhola Nath Samanta Rao, on privilege leave.

Babu Nanda Lal Das is appointed to act in class VI, with effect from the 12th November 1889, *vice* Babu Dwarka Nath Banerjea, promoted.

Pundit Gobinda Sastri, Temporary Assistant Professor, Sanskrit College (substantive *pro tempore* in class VI), is confirmed in his appointment with effect from the 11th July 1887, and in class VI with effect from the 1st July 1889, *vice* Babu Rajendra Chandra Sastri, M.A., transferred.

Babu Adhar Chandra Banerjea, B.A., Fourth Master of the Krishnagar Collegiate School (substantive *pro tempore* in class VI), is appointed substantively to that class, with effect from the 26th August 1889, *vice* Babu Rasamay Mitra.

Babu Bihari Lal Chaube, Second Pundit of the Patna College (substantive *pro tempore* in class VI), will continue as substantive *pro tempore* in that class, with effect from the 26th August 1889, *vice* Mr. G. O'Connell, *seconded.*

Babu Dwarka Nath Ghosh, Sub-Inspector of Schools, Balasore (class VII and officiating in class VI), is appointed substantive *pro tempore* in class VI, with effect from the 26th August 1889, *vice* Babu Mahendra Lal Ghosh.

Babu Sital Prasad Dutt, Sub-Inspector of Schools, Midnapore (class VII and officiating in class VI), will continue to officiate in class VI, with effect from the 26th August 1889, *vice* Babu Nitya Nanda Day, on furlough.

Babu Gadadhar Gorai, Fourth Master of the Beerbhoom Zillah School (class VII), is appointed to act in class VI, with effect from the 6th September 1889, *vice* Babu Bhubaneswar Gupta, on furlough.

Maulavi Farak Ahmed, Sub-Inspector of Schools, Chittagong (class VII), has acted in class VI from the 4th to the 10th November 1889, *vice* Babu Kedar Nath Ray on leave on medical certificate, and from the 11th November 1889, *vice* Babu Kali Kamal Chatterjea, on privilege leave.

Babu Rajendra Mohan Dutt, First English Teacher of the Dacca Madrassa (class VII and officiating in class VI), will continue to act in class VI from the 11th November to the 21st December 1889, *vice* Babu Kedar Nath Ray, on leave on medical certificate, and from the 22nd December 1889, *vice* Babu Ram Krishna Chatterjee, on furlough.

Babu Suresh Chandra Deb, Head Clerk in the office of the Inspector of European Schools on probation (class VII), is appointed to act in class VI, with effect from the 18th November 1889, *vice* Babu Goluk Chandra Chakravarti.

Babu Satkari Chandra Ghosh, B.A., Additional Master of the Hindu School (class VII), is appointed to act in class VI, with effect from the 26th November 1889, *vice* Babu Bindu Lal Banerjea, promoted.

Babu Manmatha Kumar Ghosh, B A., Second Master of the Baraset Government School (class VII), acted in class VI from the 1st to the 21st December 1889, both days inclusive, *vice* Babu Ram Krishna Chatterjea, on furlough.

Babu Manmatha Kumar Ghosh is appointed to act in class VI, with effect from the 30th December 1889, *vice* Babu Uma Charan Ghosh.

Babu Jogesh Chandra Das, B A., Third Master of the Jessore Zillah School, acted in class VII from the 21st June to the 5th August 1889, *vice* Babu Nanda Lal Das, and from the 6th August to the 5th October 1889, both days inclusive, *vice* Babu Sital Chandra Chatterjea, on privilege leave.

Babu Jogesh Chandra Das is appointed to act in class VII, with effect from the 4th November 1889, *vice* Maulavi Farak Ahmed.

Babu Khetra Mohan Banerjea, B.A., Second Teacher of the Calcutta Normal School, acted in class VII from the 6th July to the 5th August 1889, both days inclusive, *vice* Babu Sital Chandra Chatterjea, on privilege leave.

Babu Khetra Mohan Banerjea is appointed to act in class VII, with effect from the 12th November 1889, *vice* Babu Nanda Lal Das.

Babu Jeut Lal, Ninth and Temporary Eighth Master of the Arrah Zillah School, is declared to have acted in class VII from the 4th August to the 22nd October 1889, both days inclusive, during the absence, on leave, of the late Maulavi Muhammad Jan.

Babu Raj Krishna Bose, Assistant in the office of the Director of Public Instruction (substantive *pro tempore* in class VII), is appointed substantively to that class, with effect from the 26th August 1889, *vice* Babu Adhar Chandra Banerjea.

Babu Surrya Kumar Ray, B A., Additional Fourth and now officiating Fourth Master of the Chittagong College (officiating in class VII), is appointed substantive *pro tempore* in that class, with effect from the 26th August 1889, *vice* Babu Kali Kumar Ganguli, promoted.

Babu Bijoy Krishna Banerjea, Sub-Inspector of Schools, Hoogly (officiating in class VII), will continue to officiate in that class, with effect from the 26th August 1889, *vice* Babu Bhushan Chandra Karmakar, under suspension.

Babu Sri Lal Som, B.A., Seventh Master of the Hoogly Collegiate School (officiating in class VII), will continue to officiate in that class, with effect from the 26th August 1889, *vice* Babu Sital Prasad Dutt.

Babu Narayan Chandra Mukerjea, B.A., Second and now officiating Head Master of the Rungpore Zillah School (officiating in class V), is appointed to class VII, with effect from the 23rd October 1889, *vice* Maulavi Muhammad Jan, deceased, but he will continue to officiate in class V until further orders.

Babu Aghar Nath Ghosh, B A., Second Master of the Chaibassa Zillah School, is appointed to act in class VII, with effect from the 18th November 1889, *vice* Babu Suresh Chandra Deb.

Babu Surendra Nath Sinha, B.A., Second Master of the Purneah Zillah School, acted in class VII from the 1st to the 21st December 1889, both days inclusive, *vice* Babu Satkari Chandra Ghosh.

Babu Mahendra Nath Sil, Fourth Master of the Howrah Zillah School, is appointed to act in class VII, with effect from the 30th December 1889, *vice* Babu Manmatha Kumar Ghosh.

The 15th February 1890.—Babu Kalinath Chaudhuri, Deputy Inspector of Schools, Rajshahye (class IV), is allowed leave of absence for one month and six days, under Article 371 of the Civil Service Regulations, in extension of that granted to him under orders of the 27th April 1889.

The 17th February 1890.—Babu Indra Kumar Chatterjea, Sub-Inspector of Schools under the District Board of Hoogly (class VI), has been granted by the Board leave of absence for one month, under Article 369 of the Civil Service Regulations, with effect from the 7th January 1890.

Babu Tarak Nath Sen, Deputy Inspector of Schools, Dacca (class III), is allowed leave of absence for two months, under Article 370 of the Civil Service Regulations, with effect from the 2nd February 1890, or any subsequent date on which he may avail himself of it.

Babu Tarak Bandhu Chakravarti, Deputy Inspector of Schools, Mymensingh, and now Temporary Head Clerk in the office of the Inspector of Schools, Eastern Circle (class V), is appointed to officiate as Deputy Inspector of Schools, Dacca, *vice* Babu Tarak Nath Sen, on leave.

Babu Kali Kamal Chatterjea, Departmental Sub-Inspector of Schools, Furreedpore (class VI), is appointed to officiate as Head Clerk in the office of the Inspector of Schools, Eastern Circle, *vice* Babu Tarak Bandhu Chakravarti, on deputation.

Babu Mohini Mohan Bose, B.A., Head Master of the Bogra Zillah School (class V), is allowed leave of absence for one month, under Article 306(*b*) of the Civil Service Regulations, in extension of that granted to him under orders of the 22nd November 1889.

Mr. Dwija Das Dutt, M.A., Lecturer in the College classes of the Bethune Girls' School (class V), is allowed leave of absence for two months and-a-half, under Article 372 of the Civil Service Regulations, with effect from the date on which he may avail himself of it.

A. CROFT, *Director of Public Instruction.*

NOTIFICATION.

IN accordance with the Government of Bengal Notification of the 23rd July 1887, notice is hereby given that the next half-yearly examination of compounders will be held at 11 A.M. on Wednesday, the 2nd April 1890, and subsequent days, at the Campbell Medical School.

2. Every candidate must produce one of the following certificates—

(*a*). From the Superintendent of a Vernacular Medical School that he has attended regularly for one year the compounder class of the school.

(*b*). From the legally qualified Medical Manager of a Chemists' and Druggists' establishment, recognised by the Inspector-General of Civil Hospitals, Bengal, that he has been apprenticed for a period of three years in his establishment.

(*c*). From a Civil Surgeon, that he has assisted in the dispensing of drugs at the Sudder dispensary of a Civil station for a period of five years.

3. Applicants must register their names and submit their certificates, together with a fee of Rs 3, at least one week before the 2nd April 1890, at the office of the undersigned

NOTE.—The students belonging to the compounder class of a Vernacular Medical School will be exempted from paying this fee on producing a certificate from the Superintendent that they have already paid the school entrance fee.

4. Should any candidate fail to pass the required examination he will forfeit his fee.

N. B—The attention of candidates is drawn to Rules in section (*b*) of the Government notification of the 23rd July 1887, or paragraph 2 (*b*) of this notification, from which they will observe that the Chemists' and Druggists' establishments, from the legally qualified Medical Managers of which they obtain their certificates, will have to be recognised by the Inspector-General of Civil Hospitals, Bengal, prior to the candidates applying to the Superintendent to register their names to appear at the examination.

S. COULL MACKENZIE, M.D.,
Supdt., Campbell Medical School.

CAMPBELL MEDICAL SCHOOL, CALCUTTA, *the 12th February* 1890.

NOTICE.

THE following candidates have passed the examination for the admission of females to the certificate class of the Medical College, Calcutta, held on the 11th February 1890, and two following days:—

1. Ellen L. Bridge.
2. Sarah E. Bridge.
3. Jochebed Cohen.
4. Leah Rebeiro.
5. L. M. A. Carroll.*

* Subject to re-examination in Arithmetic in February 1891.

A. CROFT, *Director of Public Instruction.*

NOTIFICATION OF THE BOARD OF REVENUE.

No. 113B.

NOTICE is hereby given that the Third Sale of Opium, the Provision of 1887-88, will be held at the Government Opium Sale-room, No. 2, Bankshall-street, on Monday the 3rd March 1890, at 11 A.M., and will comprise 4,750 chests, viz.—

	Chests.
Opium manufactured at the Patna Factory ...	... 2,250
Ditto at the Ghazeepore Factory ...	... 2,500
Total	... 4,750

2nd.—The general conditions of the sale now advertised will be the same as usual. The may be ascertained by reference to the Notification issued onthe 26th November 1889, and published in the *Government* and *Exchange Gazettes*, or on personal application at the Office of the Boar of Revenue.

3rd.—The latest dates for deposit and clearance will be the 8th and 18th March 1890, respectively, that is to say no Bank of Bengal Receipts, Government Promissory Notes, or other public securities that may be tendered for deposit in redemption of Promissory Notes given by purchasers in the sale-room will be received after 1-30 P.M. of Saturday, the 8th March 1890 and no Bank of Bengal Receipts in full payment of lots will be accepted afte 3-30 P.M. of Tuesday, the 18th March 1890.

4th.—In addition to the quantity above advertised for sale, the following quantities, more or less, of the Opium manufactured at the Patna and Ghazeepore Factories will be brought to sale in the present year about the dates specified below. The Board of Revenue, however, reserve to themselves the right of altering these dates should circumstances render it expedient to do so :—

DATES.		Manufactured at the Patna Factory about chests.	Manufactured at the Ghazeepore Factory, about chests.	Total, about chests.
On or about Wednesday, 2nd April	1890.	2,250	2,500	4,750
On or about Thursday, 1st May	,,	2,250	2,500	4,750
On or about Monday, 2nd June	,,	2,250	2,500	4,750
On or about Wednesday, 2nd July	,,	2,250	2,500	4,750
On or about Monday, 4th August	,,	2,250	2,500	4,750
On or about Monday, 1st September	,,	2,250	2,500	4,750
On or about Wednesday, 1st October	,,	2,250	2,500	4,750
On or about Monday, 3rd November	,,	2,250	2,500	4,750
On or about Monday, 1st December	,,	2,250	2,500	4,750
Total		20,250	22,500	42,750

By order of the Board of Revenue, L. P.,

K. G. GUPTA, *Offg. Secretary.*

BOARD OF REVENUE, L. P., *Calcutta, the 28th January* 1890.

Notification under Section 30 *of Act XII of* 1882 (*the Indian Salt Act*).

IN exercise of the powers conferred by the second paragraph of Notification No. 769, dated 11th February 1888, issued by the Governor-General of India in Council (in the Department of Finance and Commerce), under section 23 of Act XII of 1882, and published at pages 67-72 of the *Gazette of India*, dated 11th February 1888, the Commissioner of Salt, Abkari and Separate Revenue, Madras Presidency, under section 30 of Act XII of 1882, authorizes each of the persons named below to exercise the powers of a Salt Revenue Officer :—

Locality.	Name.	Rank.	Powers to be conferred on each.	REMARKS.
Machgaon ...	Upendra Mahanty...	Peon ...	Salt Revenue Officer.	*Vice* Bonela Appanah, who has forfeited his appointment
	Sydoo Khan ...	Do. ...	Ditto ...	*Vice* Sheikh Ramzan, who has forfeited his appointment.
	Bhagoo Bhai ...	Do. ...	Ditto ...	*Vice* Gopiswami, deceased.

E. MILLETT, *Assistant Secretary.*

BOARD OF REVENUE (SEPARATE REVENUE), *Madras, the 3rd February* 1890.

Notification under Section 30 *of Act XII of* 1882 (*The Indian Salt Act*).

IN exercise of the powers conferred by the second paragraph of notification No. 769, dated 11th February 1888, issued by the Governor-General of India in Council (in the Department of Finance and Commerce), under section 28 of Act XII of 1882, and published

at pages 67-72 of the *Gazette of India*, dated 11th February 1888, the Commissioner of Salt, Abkari, and Separate Revenue, Madras Presidency, under section 30 of Act XII of 1882, authorises each of the persons named below to exercise the powers of a Salt Revenue Officer :—

Locality.	Names.	Rank.	Powers to be conferred on each.	REMARKS.
Manikpatna Circle	Sheik Muzthaza ...	Sub-Inspector, fifth grade.	Salt Revenue Officer.	Newly appointed.
	Rabash Behari Patnaik.	Peon, third grade	Ditto ...	*Vice* Kanha Charan Patnaik, resigned.
	Gopabhandu Patnaik	Duffadar, second grade.	Ditto ...	*Vice* P. Venkataswami, resigned.
	Narain Das ...	Peon, third grade	Ditto ...	*Vice* Anantha Padan, resigned.

E. MILLETT, *Assistant Secretary.*

BOARD OF REVENUE (SEPARATE REVENUE), *Madras, the 3rd February* 1890.

Notification under Section 30 *of Act XII of* 1882 (*The Indian Salt Act*).

IN exercise of the powers conferred by the second paragraph of notification No. 769, dated 11th February 1888, issued by the Governor-General of India in Council (in the Department of Finance and Commerce), under section 28 of Act XII of 1882, and published at pages 67-72 of the *Gazette of India*, dated 11th February 1888, the Commissioner of Salt Abkari and Separate Revenue, Madras Presidency, under section 30 of Act XII of 1882, authorises each of the persons named below to exercise the powers of a Salt Revenue officer :—

Locality.	Names.	Rank.	Powers to be conferred on each.	REMARKS.
Chandbally Circle	Kanoo Charan Pari	Duffadar, second grade.	Salt Revenue Officer.	*Vice* Abdul Gofoor, reduced.
	Peer Mahomed ...	Peon, third grade	Ditto ...	*Vice* Gulzar Singh, who has forfeited his appointment.
	Kangali Charan Dass	Ditto ...	Ditto ...	*Vice* Fohal Singh, dismissed.
	Bhajan Naik ...	Ditto ...	Ditto ...	*Vice* Gouri Naik, dismissed.

E. MILLETT, *Assistant Secretary.*

BOARD OF REVENUE (SEPARATE REVENUE), *Madras, the 4th February* 1890.

Notification under Section 30 *of Act XII of* 1882 (*The Indian Salt Act*).

IN exercise of the powers conferred by the 2nd paragraph of Notification No. 769, dated 11th February 1888, issued by the Governor-General of India in Council (in the Department of Finance and Commerce), under section 28 of Act XII of 1882, and published at pages 67—72 of the *Gazette of India*, dated 11th February 1888, the Commissioner of Salt, Abkari and Separate Revenue, Madras Presidency, under section 30 of Act XII of 1882, authorizes the person named below to exercise the powers of a Salt Revenue Officer :—

Locality.	Name.	Rank.	Powers to be conferred.	REMARKS.
Balasore Circle ...	Sheik Imam Bux ...	Peon, 3rd grade	Salt Revenue Officer.	*Vice* Sheik Abdul Rahiman, who has forfeited his appointment.

E. MILLETT, *Assistant Secretary.*

BOARD OF REVENUE (SEPARATE REVENUE), MADRAS, *the 10th February* 1890.

ELECTION OF MUNICIPAL COMMISSIONERS.

NOTIFICATION.

IN supersession of the notification published at page 21, Part I of the *Calcutta Gazette* of the 1st ultimo, it is hereby notified for general information that a bye-election will be held on the 13th March next, in Ward No. III of the Goberdanga Municipality in the district of the 24-Pergunnahs, to elect a Commissioner for that Ward in the place of Baboo Dijaraj Chatterjea, who has ceased to be a Commissioner, for not attending six consecutive meetings.

A. BHATTACHARJEE, *Personal Assistant in charge.*

COMMR.'S OFFICE, PRESY. DIVN., CALCUTTA, *the 11th February* 1890.

NOTIFICATION.

IT is hereby notified for general information that at the election held on the 23rd September last, Moonshee Mahabir Pershad and Moonshee Ram Nowmee Pershad were elected to be Commissioners of Ward No. I of the Hajipore Municipality, in the place of Baboo Doorga Pershad, who has been transferred, and Baboo Baijnath Pershad, who has ceased to be a Commissioner under section 20 of the Municipal Act.

J. BOXWELL, *Offg. Commissioner.*

PATNA COMMISSIONER'S OFFICE, BANKIPORE, *the 11th February* 1890.

NOTIFICATION.

IT is hereby notified for general information that an election will be held under section 27 of the Municipal Act III (B.C.) of 1884, on 25th March 1890, in Ward No. I of the Rampore Beauleah Municipality in the district of Rajshahye, for the purpose of electing a Commissioner for the said Municipality in the place of Baboo Taran Krisna Choudhury, who has ceased to be a Commissioner under section 20 of the Municipal Act.

E. E. LOWIS, *Commissioner.*

COMMR'S OFFICE, RAJSHAHYE DIVISION, *Camp Dhubgorie (Julpigori), the 14th February* 1890.

NOTIFICATION.

IT is hereby notified for general information that the following gentlemen are appointed to be members of the Managing Committee of the Charitable Dispensary at Suri, in the district of Beerbhoom, under Rule 22 of the Dispensary Manual:—

Magistrate and Chairman of the District Board	...	*Chairman.*
Vice-Chairman of the District Board	...	*Vice-Chairman.*
Baboo Madan Gopal Sing	...	*Secretary.*
„ Dhan Kristo Ghose	...	*Members.*
„ Dakhina Ranjan Mukerji	...	
„ Kamalakhya Chatterji	...	

N. S. ALEXANDER, *Commissioner.*

BURDWAN COMMR'S. OFFICE, BURDWAN, *the 13th February* 1890.

NOTIFICATION.

IT is hereby notified for general information, under rule 23 of the Rules for the management of Charitable Dispensaries, that in supersession of previous order, the undermentioned gentlemen have been appointed to be members of the Committee for the management of the charitable dispensary at Goalundo in the district of Furreedpur:—

The Sub-divisional Officer, Goalundo	... ...	*Ex-officio.*
The Civil Medical Officer, ditto.	... ...	
Mr. W. R. Haughton.	Baboo Jogendra Chandra Banerjea.	
„ Richard William Morse.	„ Purna Chandra Chakrabarti.	
Baboo Atal Behari Ghosh, 1st Munsif.	„ Jodu Nath Sen.	

A. L. CLAY, *Offg. Commissioner.*

DACCA COMMISSIONER'S OFFICE, CAMP PEROZEPORE, *the 11th February* 1890.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 19, 1890.

PART IA.

Orders and Notifications by the Government of India, &c.

[*Reprinted from the "Gazette of India."*]

The following orders, issued by the Government of India in the Home Department, are republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATIONS—MEDICAL.

The 13th February 1890.

No. 82.—The services of Surgeon W. H. B. Robinson, Bengal Establishment, are replaced at the disposal of the Military Department.

No. 84.—In exercise of the power conferred by section 17A of Act XXXVI of 1858 (an Act relating to Lunatic Asylums), as amended by Act XX of 1889, the Governor-General in Council is pleased to appoint the Lunatic Asylum at Dacca to be an Asylum to which any Magistrate or Judge exercising jurisdiction in the districts of Sylhet and Cachar may send lunatics.

POLICE.

The 10th February 1890.

No. 128.—The services of Mr. A. Shuttleworth, Assistant Superintendent of Police Bengal, are placed at the disposal of the Chief Commissioner of Assam.

A. P. MACDONNELL,
Secy. to the Govt. of India.

The following order, issued by the Government of India in the Revenue and Agricultural Department, is republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATION.—FORESTS.

Calcutta, the 14th February 1890.

No. 79-*F.C.*—The following temporary promotions are made during the absence, on three months' privilege leave, of Mr. A. L. Home, Conservator of Forests, 3rd (officiating 2nd) grade, Bengal, with effect from 30th December 1889, and until further orders:—

* * * * * *

Mr. H. H. Davis, Deputy Conservator, 1st grade, Bengal, to officiate in the 3rd grade of Conservators, and to hold charge of the Bengal Forest Circle.

* * * * * *

E. C. BUCK,
Secretary to the Government of India.

The following order, issued by the Government of India in the Foreign Department, is republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATION.

The 14th February 1890.

No. 220-G.—The following changes are made in the graded list of the Political Department:—

* * * * * *

Consequent on the return from furlough of Captain C. W. Ravenshaw, Political Agent of the third class, and with effect from the 8th December 1889—

Mr. E. G. Colvin reverts from Officiating Political Agent of the third, to Officiating Political Assistant of the first class.

* * * * * *

Consequent on augmentation, with effect from the 1st January 1890—

* * * * * *

Mr. E. G. Colvin, Officiating Political Assistant of the first, to officiate as a Political Agent of the third class.

* * * * * *

W. J. CUNNINGHAM,
Offg. Secy. to the Govt. of India.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 19, 1890.

PART IB.

ORDERS BY THE LIEUT.-GOVERNOR OF BENGAL.

MUNICIPAL AND LOCAL.

NOTIFICATION.

The 4th February 1890—In accordance with the provisos in sections 252 and 276 of Act III (B.C.) of 1884, it is hereby notified for general information that the Lieutenant-Governor is pleased to direct that the provisions contained in the second clause of section 252 and in section 276 of the said Act, shall come into operation within the limits of the English Bazar Municipality in the district of Maldah, after the expiration of a period of six months from the date of the publication of this notification.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 11th February 1890.—It is hereby notified that the declaration, dated 27th May 1889, published at page 121, Part IB of the *Calcutta Gazette* of the 5th June 1889, for the acquisition of a plot of land in the town of Serampore, district Hooghly, which was required for the construction of a municipal latrine in that town, is hereby cancelled.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 11th February 1890.—It is hereby notified that, under section 7, Act III (B.C.) of 1885, the following gentlemen have been elected to be members of the District Board of Howrah:—

Local Boards by which elected.		Names of Members.
Uluberiah	...	Baboo Ambica Churn Bose. „ Mohendra Nath Roy. Mahamahopadhyaya Mohesh Chundra Nayaratna, C.I.E.
Howrah	...	Baboo Shib Chandra Mullick. „ Charu Charan Mukerjee.

The following gentlemen are appointed, under section 7 of the Act, to be members of the Board:—

The Deputy Inspector of Schools ... } *Ex-officio.*
The Civil Surgeon ... ... }
Baboo Gurudas Kundu Chowdhry.
Munshi Mudat Ali.
Baboo Hem Chunder Ghose.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 13th February 1890.—Whereas a notification, dated the 11th August 1889, was published at page 168, Part IB of the *Calcutta Gazette* of the 14th idem, declaring the intention of the Lieutenant-Governor to extend the provisions of Part VI of Act III (B.C.) of 1884 to the Dinapore Nizamut Municipality in the district of Patna, and whereas no objection has been raised to the proposal within one month from the date of the publication of the above notification within the Municipality, it is hereby notified for general information that, in the exercise of the power vested in the Local Government by section 221 of the Act, and in accordance with the recommendation of the Commissioners of the Dinapore Nizamut Municipality, made at a meeting, the Lieutenant-Governor sanctions the extension of Part VI of the Municipal Act to the said Municipality.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 13th February 1890.—It is hereby notified for general information that, in accordance with the recommendation of the Commissioners of the Raneegunge Municipality, in the district of Burdwan, made at a meeting, and in the exercise of the power conferred on him by sections 9 and 11 of Act III (B.C.) of 1884, the Lieutenant-Governor intends to revise the limits of the said Municipality so as to include within them the villages of Paresgunje and Saldanga, the boundaries of which are given below, unless good reasons are shown to the contrary within one month from the date of the publication of this notification within the Municipality:—

VILLAGE PARESGUNJE.

On the North—The lands of the village Ronye;
On the South—East Indian Railway main line;
On the East—The lands of the village Baktiarnagore and Paresgunje Bridge in Babooisole road; and
On the West—Village Komarbazar.

VILLAGE SALDANGA.

On the North—The lands of the village Searsole and Baradahi tank;
On the South—Khautsuli Bazar;
On the East—The lands of Khautsuli; and
On the West—The Raneegunge feeder road.

The boundaries of the Raneegunge Municipality, after the inclusion within its limits of the said villages of Paresgunje and Saldanga, will be as follows:—

On the North—A line from Baradahi tank to the bridge at Gorabazar on the feeder road;
On the South—A line from the third culvert of the Igarah road to the bridge south of the flour mill in the Bankoora road; thence to the railway bridge at Paresgunje;
On the West—A line from the Gorabazar bridge to the Gopalband bridge; thence *vid* the west bank of Jumnaband tank and the railway pumping station to the third culvert on Igarah road; and
On the East—A line from Paresgunje bridge by the east bank of Rajarband tank and the bridge on the Mangulpore road to Baradahi tank.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 14th February 1890.—It is hereby notified that, under section 19, clause (3) of the Bengal Local Self-Government Act III (B.C.) of 1885, the Lieutenant-Governor is pleased to appoint Baboo Surendra Nath Mozumdar to be a member of the District Board of Purneah in the place of Baboo Bhobotosh Banerjee, transferred.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 17th February 1890.—It is hereby notified that, under section 19, Act III (B.C.) of 1885, the Lieutenant-Governor is pleased to appoint Baboo Aghore Chandra Mukerjee to be a member of the Sudder Local Board, in the district of Monghyr, *vice* Sheik Rahmat Ali, resigned.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 17th February 1890.—It is hereby notified that, under section 16, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Moonshee Abdool Hafez to be a Commissioner of the Sasseram Municipality in the district of Shahabad, *vice* Shah Amjad Hossein, deceased.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 17th February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Baboo Barada Kant Sen to be a Commissioner of the Nattore Municipality in the district of Rajshahye, *vice* Moulvie Wakiluddin Ahmed, transferred.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 17th February 1890.—It is hereby notified that, under section 27, Act III (B.C) of 1884, the Lieutenant-Governor is pleased to appoint Mr. J. Hay to be a Commissioner of the South Barrackpore Municipality, in the district of the 24-Pergunnahs, *vice* Mr. R. Leighton, who has ceased to be a Commissioner under section 20 of the Act.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 17th February 1890.—It is hereby notified that, under section 19, Act III (B.C) of 1885, the Lieutenant-Governor is pleased to appoint Munshi Eshau Ali and Munshi Mosaheb Lal to be members of the Begusarai Local Board, in the district of Monghyr, *vice* Munshi Goorsahai Sing and Baboo Hari Pershad, resigned.

H. J. S. COTTON,
Offg Secy. to the Govt. of Bengal.

NOTIFICATION.

The 17th February 1890.—It is hereby notified for general information that, in exercise of the power vested in the Local Government under section 351 of Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to confirm the proposal of the Commissioners of the Comillah Municipality, made at a meeting, to impose a penalty not exceeding Rs. 20 for the infringement, after notice, of bye-law No. 9 of the bye-laws framed by the Commissioners under section 350 of the Act, and published under Government notification, dated 12th November 1889, at page 246, Part IB of the *Calcutta Gazette* of the 20th idem.

The bye-law thus amended is as follows :—

"9. Every owner or occupier of a house or premises living within the latrine area, except those who resort to public latrines, must construct a privy of his own within his premises, at least 1½ feet above ground, and must provide it with a proper moveable receptacle of metal or earthenware.

"The penalty for infringement, after notice, shall be a fine not exceeding Rs. 20."

H. J. S. COTTON,
Offg. Secy. to the Govt. of Benga

NOTIFICATION.

The 18th February 1890.—It is hereby notified that, under section 27, Act III (B.C.) 1884, the Lieutenant-Governor is pleased to appoint Baboo Ram Sadan Bhattacharjea be a Commissioner of the Purulia Municipality, in the district of Manbhoom, *vice* Mr. C. Farewell, who has ceased to be a Commissioner under section 20 of the Act.

H. J. S COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified for general information that, in t exercise of the power vested in the Local Government by section 4 of Act XX of 1887, t Lieutenant-Governor has been pleased to declare that the provisions of section 3 of the A with respect to wild birds shall apply, so far as regards the rules framed for the cantonme of Dum-Dum, to deer and hares.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Benga

NOTIFICATION.

The 18th February 1890.—The following rules framed by the Military authorities of the Dum-Dum Cantonment under section 3 of Act XX of 1887, for the protection of wild birds and game within the limits of the Cantonment, are hereby confirmed by the Lieutenant-Governor under clause (4) of the said section of the Act, and are published for general information under clause (5) of section 6 of the General Clauses Act I of 1887 :—

Rules.

1. "Wild bird," for the purpose of these rules, shall include jungle fowl, peafowl, pheasants, partridges, quail, snipe, plover, wild duck, teal and ortolans.

2. The Local Government having, by notification of this date, declared that the provisions of section 3, Act XX of 1887, shall apply to hares and deer, the following rules will apply to those animals also as well as to wild birds.

3. The "breeding season" for the purposes of these rules shall extend from the 15th March to the 15th August.

4. Whoever, during the breeding season, has in his possession in the Cantonment of Dum-Dum any wild bird, deer or hare recently killed, or exposes for sale any such bird or animal living or dead, shall be liable to a fine not exceeding Rs. 5 for each bird or animal.

5. Whoever, during the breeding season, imports into the Cantonment the plumage of any kind of wild bird recently killed or taken, or the fur or skin of any hare or deer recently killed or taken, shall be liable to a fine not exceeding Rs. 5 for each bird or animal.

6. In the case of a second conviction, the fine may extend to Rs. 10 for each bird or animal.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified that, under section 7, Act III (B.C.) of 1885, the following gentlemen have been elected to be members of the District Board of Patna :—

Local Boards by which elected.	Names of Members.
Patna	Moulvie Abdul Hamid. Munshi Gajadhur Prosad. Moulvie Zahiruddin. Kazi Syed Reza Hossein, Khan Bahadoor.
Barrh	Moulvie Afzaluddin Ahmed. Sheikh Bahadur Ali Khan.
Behar	Munshi Kesho Dyal. Sheikh Amid Ali. Baboo Durga Prosad. Moulvie Mowla Bux.
Dinapore	Mr. Sharfuddin. Moulvie Sayad Zahiruddin.

The following gentlemen are appointed, under section 7 of the Act, to be members of the Board :—

The Joint-Magistrate ... ...
„ Road Cess Deputy Collector ... ...
„ Executive Engineer ... ... } *Ex-officio.*
„ Civil Surgeon ... ...
„ Deputy Inspector of Schools ... ...
Syed Tajamul Hossein Khan.
Moulvie Syed Fazl Imam, Khan Bahadur.
„ Syed Yusuf Imam.
„ Nasiruddin Ahmed.
Rai Isri Prosad.
Moulvie Nesar Ali.
Baboo Girjapat Sahai.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Patna Local Board, in the district of Patna, under section 25 of Act III (B.C.) of 1885, of Munshi Gajadhar Prosad to be their Chairman.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Barrh Local Board, in the district of Patna, under section 25 of Act III (B.C.) of 1885, of Shaikh Bahadur Ali Khan to be their Chairman.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Behar Local Board, in the district of Patna, under section 25 of Act III (B.C.) of 1885, of Moulvie Shamsul Huq to be their Chairman.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Dinapore Local Board, in the district of Patna, under section 25 of Act III (B.C.) of 1885, of Mr. Sharfuddin to be their Chairman.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—In the notification, dated the 7th January 1890, published at page 7, Part IB of the *Calcutta Gazette*, dated the 8th idem, containing the names of the gentlemen elected and appointed to be members of the Local Boards in the district of Burdwan, *for* "Baboo Bunwarilall Hali," "Baboo Annada Chundra Das," and "Mr. C. Earfe," *read* "Baboo Bunwari Lal Hati," "Baboo Ananda Chundra Das," and "Mr. C. Earpe."

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified for general information that the Lieutenant-Governor is pleased, in the exercise of the power conferred on him by section 60 of the Bengal Local Self-Government Act III (B.C.) of 1885, to extend the provisions of section 99 of the said Act to the District Boards of the following districts:—

Burdwan.	Moorshedabad.	Tipperah.
Bankoora.	Dinagepore.	Noakhally.
Beerbhoom.	Rajshahye.	Chittagong.
Midnapore.	Rungpore.	Monghyr.
Hooghly.	Bogra.	Bhagulpore.
Howrah.	Pubna.	Malda.
24-Pergunnahs.	Julpaigoree.	Cuttack.
Khoolna.	Dacca.	Balasore.
Nuddea.	Backergunge.	Pooree.
Jessore.	Mymensing.	

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified for general information that under Rule 32 of the Rules framed under section 138 (*a*) of the Bengal Local Self-Government Act, 1885, the Lieutenant-Governor is pleased to fix Tuesday, the 15th April 1890, as the date for holding an election, under Rule 46 of the aforesaid Rules, in thana Raneegunge, in the district of Burdwan, for the purpose of filling a vacancy in the representation of that thana on the Local Board of Raneegunge.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 18th February 1890.—It is hereby notified that, under section 27, Act III (B.C. of 1884, the Lieutenant-Governor is pleased to appoint Baboo Ambica Charan Bose to be a Commissioner of the Moheshpore Municipality, in the district of Jessore, *vice* Babo Jaminipati Roy Chowdhury, deceased.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 18th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the expense of the Ghatal Municipality for a public purpose, viz., for erecting houses for the municipal mehters as well as for the construction of a road to those houses, in the village of Konenagore, pergunnah Barda, district Midnapur, it is hereby declared that for the above purpose 3 plots of land, measuring 5 cottahs and 13 chattacks of standard measurement, are required. The lands are bounded as follows :—

1st Plot.—Measuring 4 cottahs and 13 chattacks, is bounded on the North and East by the lakheraj land of Rama Nath Roy; on the South by the embankment of Choudhury's tank ; and on the West by the Choudhury's tank.

2nd Plot.—Measuring 10 chattacks, is bounded on the North by the lakheraj land of Rama Nath Roy ; on the South by paddy land; East by a public drain ; and the West by the lakheraj land of Rama Nath Roy.

3rd Plot.—Measuring 6 chattacks, is bounded on the North and East by the public drain ; on the West by lakheraj land of Rama Nath Roy ; and on the South by the paddy land.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 17th February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the expense of the Calcutta Municipality for a public purpose, viz., widening Beny Madhub Nandan Brothers' 1st Lane, it is hereby declared that for the above purpose pieces of land Nos. 52, 51, 50, 49, 40, 39 and 4, Beny Madhub Nandan Brothers' 1st Lane, and No. 7, Russa Road North, in Bhowanipore, Dihi Punchannogram, district 24-Pergunnahs, measuring, more or less, 4 cottahs 13 chittacks and 8 square feet only, are required. The boundaries of the lands are as follows :—

Portion marked A on plan.—On the North, portion of No. 7, Russa Road North; on the South, Beny Madhub Nandan Brothers' 1st Lane ; on the East, partly Russa Road North, and partly portion of No. 7, Russa Road North ; and on the West, partly Beny Madhub Nandan Brothers' 1st Lane, and partly portion of No. 7, Russa Road North.

Portion marked B on plan.—On the North and East, Beny Madhub Nandan Brothers' 1st Lane; on the South, portion of No. 52, Beny Madhub Nandan Brothers' 1st Lane ; and on the West, partly portion of No. 52, Beny Madhub Nandan Brothers' 1st Lane, and partly a public drain.

Portion marked C on plan.—On the North and West, Beny Madhub Nandan Brothers' 1st Lane ; on the South, portions of Nos. 50 and 51, Beny Madhub Nandan Brothers' 1st Lane ; and on the East, a public drain.

Portion marked D on plan.—On the North and West, Beny Madhub Nandan Brothers' 1st Lane; and on the South and East, portion of No. 49, Beny Madhub Nandan Brothers' 1st Lane.

Portion marked E on plan.—On the North and East, portion of No. 4, Beny Madhub Nandan Brothers' 1st Lane; and on the South and West, Beny Madhub Nandan Brothers' 1st Lane

Portion marked F on plan.—On the North and East, Beny Madhub Nandan Brothers' 1st Lane ; and on the South and West, partly portion of No. 39, Beny Madhub Nandan Brothers' 1st Lane, and partly portion of No. 40, Beny Madhub Nandan Brothers' 1st Lane.

Plan and specifications of the land are filed in the Office of the Commissioners for public inspection.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 15th February 1890.—The following gentlemen are appointed, under section 112 of Act IX (B.C.) of 1880, to be members of the Lohardugga District Road Committee :—

Mr. T. F. Peppe. | Kumar Jogat Mohun Nath Sahi Deo.
Lal Iswar Nath Sahi Deo.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 19, 1890.

PART II.

Advertisements.

[N.B.—Advertisements, Notices, &c., intended for insertion in this part of the Gazette, cannot be received after Noon on Monday.]

LAND SALE NOTICES.

NOTICE is hereby given that the undermentioned plots of the Nizamut lakhiraj State lands situated in the district of Nuddea will be put up to sale at the Collectorate of Nuddea on the 13th March 1890, corresponding with 1st Chyte 1296 B.S.

The purchasers of the plots will be subject to the following conditions :—

I.—The plots will be sold revenue free to the highest bidders above the upset price.

II.—The sale to be subject to existing leases and to the rights conferred by the settlement proceedings and by the laws in force, and purchasers to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the Revenue authorities.

III.—If the amount of the purchase-money do not exceed Rs. 100, the whole amount will be paid down at once.

IV.—If the amount of the purchase-money exceed Rs. 100, one-fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the fifteenth day after the sale, reckoning the day of sale as one, or, if that day be a close holiday, then by noon of the first succeeding office day, the sale to be cancelled (the sum deposited being forfeited to Government), and the estates to be again put up for sale at the risk of the defaulting purchasers after issue of advertisement as in the case of original sale.

V.—The purchasers shall be put in possession on receipt of the orders of the Collector approving of the sales, but such possession shall be liable to be disturbed in case the final confirmation of the Board of Revenue should not be accorded to the proceedings.

Consecutive number of plot.	Name of estate.	Mouzah.	Pergunnah.	Approximate area in bighas.	Annual assessment.	Upset price.	Boundaries.	Remarks.
				B. K. CH.	Rs. A. P.	Rs. A. P.		
	Aujongachi in Bartoil.	Bahaliapara in Bartoil.	Mohamedshahye.	31 7 14	13 0 0	313 5 0	North, east, and south of jote lands of Hagooram Boil and others of Bartoil; west of the confines of mouzah Belgharia.	Mourashi jote of Banesh Chandra Sarkar of Belgachi and dwelling-house of Gopal Chandra Ghose of Bartoil.
	Aujongachi ...	Aujongachi ...	Taragooniah	394 1 10	93 8 0	3,936 11 0	West of the dwelling-houses of Chuni Sheikh and Nabin Mandal Ghose and others, ryots of the zemindars of Chitna; north of the nij-jote lands of the aforesaid zemindars; east of the confines of Khairpur; south of the nij-jote lands of the aforesaid zemindars.	Mourashi jote of Banesh Chandra Sarkar of Belgachi.
	Dak Adda ...	Kulberia ...	Plassey ...	1 4 8	2 1 6	40 0 0	East and north of a public road; south and west of jote lands of Brojo Lal Rai.	Plot No. I, khas Nizamut.
							South of jote lands of Gurudoyal Sinha and Bhikoo Mandal; east and north of jote lands of Punchanan Rai; west of jote lands of Bani Mandal.	Plot No. II, khas Nizamut.

Nuddea Collectorate, the 14th January 1890.

N. K. Bose, for Collector.

NOTICE is hereby given that the undermentioned plot of the Nizamut lakhraj State lands, situate in the district of 24-Pergunnahs, will be put up to sale at the Collectorate of the 24-Pergunnahs on Friday, the 28th March 1890—

The purchaser of the plot will be subject to the following conditions :—

I.—The plot will be sold revenue-free to the highest bidder above the upset price.

II.—The sale to be subject to existing leases, and to the rights conferred by the settlement proceedings and by the laws in force, and purchaser to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the revenue authorities.

III.—If the amount of the purchase-money do not exceed Rs. 100, the whole amount will be paid down at once.

IV.—If the amount of the purchase-money exceed Rs. 100, one fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the 15th day after the sale, reckoning the day of sale as one, or if that day be a close holiday, then by noon of the first succeeding office day, the sale to be cancelled (the sum deposited being forfeited to Government), and the plot to be again put up for sale at the risk of the defaulting purchaser after issue of advertisement as in the case of original sale.

V.—The purchaser shall be put in possession on receipt of the orders of the Collector approving of the sale, but such possession shall be liable to be disturbed in case the final confirmation of the Board of Revenue should not be accorded to the proceedings.

Name of estate.	Mouzah.	Pergunnah.	Approximate	Annual assessment.	Upset price.	Boundaries.	Remarks.
			B. K. CH.	Rs. A. P.	Rs. A. P.		
Dak	Adda Chitpore	Amirabad...	0 3 6	16 14 0	506 4 0	South of the dwelling house of Jitu Dhobi, east of the tank belonging to Zebunnissa Begum, north of the dwelling house of Talemun Jemadar, and west of a public road and the sepoy post.	Dwelling-house of Kudroo Dhobi of Chitpore.

K. N. ROY, Deputy Collector, for Collector on tour.

NOTICE is hereby given, under section 6, Act XI of 1859, section 11, Act VII (B C.) of 1868, and Act II (B.C.) of 1871, that the undermentioned dependent tenures in the Town Khas Mehal, in the district of Chittagong, will be put up to public and unreserved sale at the Collector's Office of that district on the 3rd day of March 1890, for arrears of rent and cesses remaining unpaid after the latest day of payment, the 26th day of December 1889.

Khas Tehsil Office, Town Circle.

Serial No.	No. of tenures in register No. I.	Names of tenures and their situation.	Annual rental.		The amount of arrears for which the tenures to be sold.			Remarks.
			Rent.	Cess.	Rent.	Cess.	Total.	
		Thana town mouzah Bakalya, mehal Nuabad.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1	827	20134/559 Taluq Manindra Chandra Ghose and others.	3,373 6 0	226 9 0	843 0 0	80 11 8	899 11 0	
		Mouzah ditto, thana ditto.						
2	895A	20134/559(3) Taluq Khetra Moni Dasi and others.	1,135 11 9	44 8 0	284 0 0	11 1 0	295 1 0	The entire taluqs will be sold.
		Thana Futikchir, mouzah Jouskhala, mehal Nuabad.						
3	4818	23878/558 Taluq Obedar Rahaman Khan	2,344 0	102 9 0	683 0 0	5 5 9	688 5 9	

Chittagong, the 14th January 1890. C. H. ALLEN, for Offg. Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Khulna will be put up for sale at the Collector's Office of that district on the 20th March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

1	2	3	4	5	6	7	8	9
No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
114-1	Kismut pergunnah Rajitpur.	2,124 4 7	.....	Share No. 1, 3as. 3g. 2a. 16k.	Shital Nath Bhanga and others.	420 2 8	.....	82 8 0
127-1	Ki-mut pergunnah Bhaluka	14,943 15 8	.....	Share No. 1, 4g. 13-8-8-1	Grijanath Ray Chowdhury and others.	224 13 5	.....	31 10 5
159-4	Kismut Raundanea, pergunnah Sarparajpur.	549 13 8	.....	Share No. 4, 2as. ...	Haran Chandra Majumdar and others.	68 11 8	.....	13 3 2
170-3	Kismut pergunnah Sillimabad.	5,784 0 0	.....	Share No. 2, 2as. 9g.	Syamacharan Bosu and others.	885 11 9	.....	210 15 6

Khulna Collectorate, the 8th February 1890. B. DE, Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Dacca will be put up for sale at the Collector's Office of that district on the 23th March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realised in the same manner as arrears of revenue.

When in columns 5, 7 and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Touji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
115	Pergunnah Patpashar, Banamch Mahadev Mukhopadhya.	10,708 0 1½	.....	Residue share ...	Hara Sundari Chaudhurani and others.	8,973 5 4½	.....	3,694 7 4½
				Hisya 2a. 13g. 1kr. 1kt.	Monindra Nath Mukhopadhya and others.	1,791 10 0	.....	725 9 7
193	Pergunnah Rajnagar, tuppeh Hosanabad Jawar Hydernbad Khachak Pitrash market.	688 5 4½	Entire estate.	.....	Sukhmoy Chandra Das himself and manager for Gour Hari Das and others.	.....	69 13 2½	.....
194	Pergunnah Rajnagar, hisya Raj Krishna Sen. Chakla Nurpur Huzanneesa.	708 9 11½	.....	Residue share ...	Hueni Khanam and others.	201 13 6½	.....	78 11 9
197	Pergunnah Rajnagar, Chakla Nurpur, Debi Prosad Sen.	632 10 5½	.....	Hisya 2g. 3kr. 3kt.	Durga Sunker Sen ...	5 7 9	.....	2 8 1
272	Pergunnah Shahebabad Alay Poshkosh Dewani, Banamch Mirza Hyderali.	533 5 4	.....	Residue share ...	Rajendra Narain Bandapadhya.	133 5 1	.....	83 7 1
				Hisya 1a. 11½g. ...	Ditto ditto ...	59 1 4	.....	32 9 9
325	Tuppeh Mohesswardi, Banamch Saha Newaj Khan, Elahi Newaj Khan.	14,133 5 4½	.....	Hisya 15g. 1kr. 1kt. 6t. Ananda Mohon, Hari Mohon and Krishna Mohon Das.	Ananda Mohon Das and others.	677 2 6	.....	102 3 9
392	Pergunnah Bikrampur, taluq Brindavan Chandra Radha Kishore Sen, hisya 8a. Radha Madhav.	1,452 9 1	.....	Residue share ...	Nanda Kumar Guha...	425 6 1½	.....	159 11 6
393	Pergunnah Bikrampur, taluq Brindavan Chandra Radha Kishore Sen, hisya 8a. Raj Kishore Sen.	1,452 9 1	.....	Ditto ...	Rup Lal Raghu Nath Das and others.	554 10 2½	.....	145 8 7
534	Pergunnah Bhawal Jawar Naluakoti, taluq Sridhar Hari Rati, Krishna Ram Chakraverty.	844 0 0	.....	Ditto ...	Joy Chandra Chaudhury and others.	74 15 9½	.....	43 12 2½
				Hisya 1a. Banga Chandra, Har Chandra Chakraverty.	Banga Chandra Chakraverty and others.	84 0 0	.....	14 5 0½
				Hisya 9p. 2kr. 1kt. Bramya Mayi Debya.	Brahmya Mayi Debya	16 4 8	.....	14 1 1
538	Pergunnah Mobarak Ujiar, taluq Jagir Abdulla.	961 1 0½	.....	Residue share ...	Showdamini Gupta and others.	334 6 0½	.....	74 13 2
563	Shahar Chandina Mav Peshkash Chandina, Maulvi Abdul Ali.	1,898 10 8	.....	Ditto ...	Protap Chandra Das and others.	661 8 2	.....	170 4 6
569	Pergunnah Bikrampur, taluq Ram Ganga Hom.	684 8 0	.....	Ditto ...	Sitamani and others ...	256 9 0	.....	95 0 0
6819	Pergunnah Patpashar, taluq Golam Hosen Chaudhuri.	930 8 11½	.....	Ditto ...	Amirannessa Khatoon, Manager for Maulvi Abdul Hye and others.	359 1 9	.....	86 15 11
				Hisya 1½a. Najbannessa and others.	Najbannessa and others.	37 3 5	.....	8 2 10
				Hisya 3a. 2g. 1kr. 1½kg. Hamidannessa and others.	Hamidannessa Khatoon and others.	181 12 2	.....	55 12 11
5849	Pergunnah Hasbara Raja Ram Chaudhuri.	823 10 1	Entire estate.	.....	Gojendra Nath Shome and others.	.....	1 12 0	.....
6551	Pergunnah Rajnagar, taluq Debi Prasad Ghosh.	642 2 1½	.....	Residue share ...	Kala Chand Shaha and others.	535 1 8½	.....	40 1 5
8454	Char Baktabuli .	584 0 0	Entire estate.	.....	Pran Nath Pare and others.	.....	153 0 0	.....
8660	Tunneh Amirabad, Estate No. 234.	760 4 1½	Ditto ...	.....	Abhaya Charan Das and Brojendra Kumar Rai Chaudhuri.	.....	72 14 8	.....
9069	Char Fukurhati within Char Krishnapura.	519 0 0	Ditto ...	.....	Kripa Mayi Debya and others.	.....	7 2 0	.....
9083	Mouzah Golara Baluchari within Char Jalua Kunta.	752 0 0	Ditto ...	.....	A. M. Bhoogy Shaheb, Receiver.	.....	140 0 0	.....
9101	Char Tilli within Char Mirzapur.	1,187 0 0	Ditto ...	.....	Kailash Bashini and Bindhu Bashini Chaudhurani and others.	.....	209 0 0	.....
9762	Pergunnah Burdakhat Char Delwarpur.	4,196 0 0	Ditto ...	.....	Jaharuddin Hyder and others.	.....	1,052 0 0	.....

Dacca Collectorate, the 8th February 1890.

L. HABB, Offg. Collector.

NOTICE is hereby given that the proprietary right of Government, as specified in the conditions of sale below to the undermentioned estate, situate in the district of Maldah, will be put up to sale at the Maldah Collectorate on 26th March 1890, corresponding with 14th Chaitra 1296 B.S.

The purchasers will be subject to the following conditions of sale :—

Conditions of Sale.

1*st*.—The estate to be sold to the highest bidder above the upset price, which will be fixed by the Collector at the time of sale. The purchaser of this estate will be considered as the proprietor of the estate, and the entire proprietary right of Government in such estate will be transferred to him, subject to the revenue fixed in perpetuity.

2*nd*.—The sale to be subject to existing leases and to the rights conferred by the settlement proceedings and by the laws in force; and purchasers to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the Revenue authorities.

3*rd*—If the amount of purchase-money do not exceed Rs. 100, the whole amount to be paid at once.

4*th*—If the amount of purchase-money exceed Rs. 100, one-fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the fifteenth day after the sale, reckoning the day of sale as one, or, if that day be a close holiday, then by noon of the first succeeding office day, the sale is to be cancelled (the sum deposited being forfeited to Government), and the estate to be again put to sale at the risk of the defaulting purchaser, after issue of advertisement, as in the case of original sale.

Number on the district roll.	Name of estate and pergunnah.	Approximate area in acres.	Government revenue assessed.
		A. R P.	Rs.
98	Kismut Jot Kusturi, pergunnah Kotuali	62 0 12	50

Collector's Office, district Maldah, the 6th February 1890. POORNO CHANDRA CHATTERJEE, Dy. Collr in charge.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Beerbhoom will be put up for sale at the Collector's Office of that district on 26th March 1890, for arrears of revenue and other demands which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
53	Shahapur, pergunnah Joynugal.	8,490 7 0	.....	2*a*. 13*g*. 1*k*. 1 *krant*i	Choudhuri Mahomed Ichcha and others.	581 11 8	.....	4 7 0
78	Tarigram, pergunnah Shahajapur.	1,503 0 0	The whole	.....	Sheikh Tajikulla ...	.....	6 2 0	.....
94	Gokulata, pergunnah Chakala Gokulata.	3,250 14 9	.....	8*a*.	Dharmadas Gati Mustafi and others.	1,625 7 0	.....	13 1 6
109	Dankra, pergunnah Ichchapukhuria.	1,503 1 0	.....	13*a*. 17*g*. 2*k*. ...	Giris Chandra Choudhuri, guardian of Kumaris Chandra Roy, minor, and others.	1,563 9 2	.....	3 10 1
122	Bajitpur, pergunnah Akbarshahi.	2,996 1 0	.....	9*a*. 8*g*. 1*kag*. 8 *til*.	Nil Madhab Roy and, others.	1,760 13 11	.....	14 4 6
936	Palitpur Basantapur, pergunnah Dadshahi.	751 16 0	The whole	.....	Ratan Kumari Bibi and others.	.....	218 8 0	.....

Beerbhoom Collectorate, the 10th February 1890. N. K. SARKAR, Dy. Collector in charge.

NOTICE is hereby given, under section 6, Act XI of 1859, that the undermentioned estates in the district of Durbhunga will be put up to public and unreserved sale at the Collector's Office of that district on the 15th March 1890, corresponding with 9th Chait 1297F., on Saturday, at 12 o'clock, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realised in the same manner as arrears of revenue due on the 13th January 1890.

Serial No.	Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share.	Names of proprietors of properties to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
			Rs. A. P.				Rs. A. P.		Rs. A. P.
1	457	Erasi Ganz Barar Hurdaspore, pergunnah Bala Gutch.	547 3 10	.....	Patti ijmali 9 annas 12 gundas.	Mosamat Jasoda Koer, mother and guardian of Adya Parshad Singh, Baboo Sital Parshad Singh, Shew Gulam Singh, Singheswa Parshad Singh, Nar Singh Parshad, Chhatar Narain Singh, Kunj Narain Singh and others.	368 6 8	.....	368 6 8

Durbhunga Collectorate, the 12th February 1890. A. AHMAD, Deputy Collector, for Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Backergunge will be put up for sale at the Collector's Office of that district on the 26th March 1890, corresponding with 14th Choitra 1296 (B.S), for the kist ending 12th January 1890, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale:—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
1	Tuppeh Azimpur, hissa 8a. 10g.	2,431 4 4½	.....	Joint share, 6a. 10g. 3k. 1½ 10.	Asmat Ali Khan Choudhury and others.	917 7 6½	.....	6 10 10
1416	Taluq Bancha Ram Bosu, hissa 8a., pergunnah Bozergomedpur.	1,550 5 3	.....	3a. under separate account.	Dinabandhu Sen ...	290 5 10½	.....	45 6 4½
1487	Jiban Krishna Sen, Hari Krishna Sen, Komal Krishna Sen, Govindadeb Roy, Pran Manikya Chandra Roy, Darpa Narayan Roy, and Mritunjaya Mukherjee taluq, pergunnah Bozergomedpur.	2,295 9 5½	.....	6a. 15½g. 1½kt. Ijmali share.	Uma Charan Bhattacharjee and others.	978 13 0½	.....	24 13 1
1548	Taluq Mohammad Hamza, pergunnah Bozergomedpur.	1,159 3 8	.....	8a. Ijmali share ..	Grish Chandra Mukhapadhyaya and others.	579 9 10	... ..	28 4 11
1578	Panioty Alexander taluq, pergunnah Bozergomedpur.	4,833 12 0½	.....	2a. Ijmali share ...	Jagadiswari Debya ...	604 3 2½	.....	113 2 11½
1185	Radha Krishna, Haranauda Roy, and Kailas Siddhanta taluq, pergunnah Bozergomedpur.	24,036 10 10	.....	5a. 14½g. 1½k. Ijmali share.	Brindabun Chandra Chakervarti and others.	874 11 7	.....	43 15 1½
1628	Ramna Bamna Jour Mohammud Safi taluq, pergunnah Bozergomedpur.	19,487 10 8	.....	8a. 15½g. 19-15-0½-1. Ijmali share.	Golam Asad Choudhuri and others.	10,676 12 1	.....	2,119 11 7
1633	Ram kaja Deo taluq, pergunnah Bozergomedpur.	2,062 2 11½	.....	2a. Ijmali share ..	Jagadiswari Debya ...	257 12 2½	... ..	51 13 5½
1643	Ditto ditto ...	2,062 2 11½	.....	3a. under separate account.	Taramani Debya ...	380 10 7	.....	78 6 2
1751	Radha Kanta Sen taluq, pergunnah Chandradwip.	906 10 8	.....	18a. Ijmali share ..	Kali Mohan Mohinta and others.	453 5 4	.....	2 13 9½
1764	Pergunnah Dakhin Shahabazpur, 3a. 1½g. 1kt. share.	8,543 6 8	Whole estate.	.....	Mr. Alexander Toms, executor of estate J. P. Wise and others.	... ..	5,332 10 8½	.....
1910	Haveli Solimabad tappeh, hissa 10g.	1,045 7 9½	.....	5a. 10g. Ijmali share	Bama Sundari Gupta and others.	359 5 5½	.....	72 1 11½
1916	Ditto ditto ..	1,045 7 9½	.....	6a. 15g. share under separate account.	Kailash Chandra Sen Mujumdar and others.	441 1 8½	.....	59 13 0½
3255	Pergunnah Ratandi Kalikapur, hissa 2a.	3,154 11 5	.....	7a. 6½g. 2kts. Ijmali share.	Umesh Chandra Roy Choudhuri and others.	1,445 14 5	.... .	403 9 7
3257	Pergunnah Ratandi Kalikapur, hissa 4a.	6,309 0 10	.....	10g. Ijmali share ...	Jagadiswari Debya ...	197 2 0	.....	67 5 5
3258	Ditto ditto ...	6,309 0 10	.....	6½g. 2kts. Ijmali share	Ditto	131 7 4	... ..	43 15 11
4546	Padma *alias* Ramjanpur, pergunnah Kashimpur Silapatti.	5,383 0 0	Whole estate.	.....	Abinash Chandra Ghosa and others.	.....	421 8 0	.....
4550	Kukua Khag Dom, Domingo Manual, DeSilva, Braja Mohan Sen, Durga Mohan Das, Musammat Krishna Mohini Osat taluq, pergunnah Bozergomedpur.	9,796 0 0	Ditto ...	.. ...	Jagadeswari Debya and others.	.....	For 1888-89 8,269 4 4, 1889, kist September 153 0 0, 1890, kist January 1,224 0 0	.....
							9,646 4 4	
4757	Madanpura Chur, pergunnah Ratandi Kalikapur.	1,139 0 0	Ditto ...	.....	Brindaban Chandra Chakervarti Roy Choudhuri and others.	.....	371 10 6	.....
4897	Tiakhali, pergunnah Chandradwip.	533 14 3	.....	10a. 5g. Ijmali share	Nistarini and others	342 0 4	.....	32 0 4
4897	Ditto ditto ...	533 14 3	... ..	1a. 15g. share under separate account.	Tarini Charan Somoddar.	58 6 4	.....	5 7 6
5008	Chak Barguna, Haola No. 16.	668 0 0	Haolndari right of the whole Haola.	.....	Ramjan Haoladar and others.	.....	107 0 0	.....
5193	Ramdeb Datta taluq, mouzah Barshipur, pergunnah Gopalpur Mrijanagar.	699 0 0	Whole estate.	.. ...	Jearuddin Haoladar and others.	.....	0 10 0	.....
5211	Kumaria Chur, hissa 13a. 18½g. 1kt., pergunnah Uttar Shahabazpur.	1,160 0 0	.....	3a. 8g. 2kt. 11½til. Ijmali share.	Durga Prosonna Roy and others.	259 5 0	.....	178 0 1
5223	Chhota Lumchi Dhali Chur.	1,253 0 0	.....	3a. 8½g. 1kt. 20dhur. Ijmali share.	Mr. A. Toms, executor of estate of J. P. Wise and others.	202 11 7	.....	107 7 0
6449	Tappeh Sultanabad, hissa 7½g., Asimannessa Khatun and others.	543 1 4	Whole estate.	.....	Moulvie Abdul Wazed and others.	.....	5 10 4	..

Backergunge Collectorate, the 15th February 1890. POORNO CHUNDER GUPTA, Deputy Collector in charge.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Furreedpore will be put up for sale at the Collector's Office of that district on the 25th March 1890, corresponding to 13th Choitra 1296 (B. S.), for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
249	Panchashasari, pergunnah Chandpratap.	744 0 0	Whole ...	.....	Iswar Chandra Saha and others.	.....	188 0 0	.....
284	Panchashasari, pergunnah Sahajapur.	1,521 0 0	Do. ...	.....	Jadub Chandra Bagchi and others.	.....	300 11 0	.....
3555	Taluq Rajneswar Pal Choudhury, pergunnah Nasarat Shahi.	2,539 13 8	.....	Hissa 4 annas ...	Uma Prosonno Pal Choudhury and others.	639 15 0	.....	61 11 6
3870	Taluq Ram Prosad Rai, pergunnah Kharagpur.	524 12 9½	Whole ...	.....	Abhoy Coomer Rai and others.	.....	27 15 5½	.....
4004	Taluq Kali Sanker Sen, pergunnah Rajnagore.	1,140 4 3½	Do. ...	.....	Kumadini Kant Barujya Choudhuri and others.	.....	128 5 11	.....
4028	Zemindari Basudev Rai, pergunnah Rajnagore.	4,119 4 9½	.....	Hissa 10 annas excepting the specific share bearing a revenue of Rs. 63-1.	Soshi Mohan Pal Choudhuri and others.	2,574 9 9½	.....	816 5 10
4028	Ditto ditto ...	4,119 4 9½	.....	Hissa 6 annas, ditto.	Gopi Mohan Rai Choudhuri and others.	1,481 10 0	.....	185 13 6
6220	Hissa Nilmoni Sen, pergunnah Rajnagore.	597 12 3	Whole ...	.....	Raj Coomer Pal and others.	.....	82 8 7½	.....
6220	Ditto ditto ...	597 12 3	.....	Hissa 7½ annas ..	Raj Coomer Pal and Mohima Chandra Pal.	280 3 1½	.....	74 0 2½
6220	Ditto ditto ...	597 12 3	Whole ...	.....	Haro Lal Pal and others.	.....	5 7 4½	.....
6220	Ditto ditto ...	597 12 3	.....	Hissa 1 anna ...	Haro Lal Pal ...	18 11 0	.....	4 14 11½
6395	Gazlai char, appertaining to char Madan Sankar.	670 12 0	Whole ...	.....	Kripa Moyee Debya, Poorna Chandra Bandopadhya and others.	.....	11 7 3	.....

Furreedpore Collectorate, the 15th February 1890. PURNO CHANDRA RAI, Deputy Collector in charge.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Mozufferpore will be put up for sale at the Collector's Office of that district on 27th March 1890, corresponding 21st Chait 1297 Fusli, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue due on the 13th January 1890.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
261	Ibraheempoor, pergunnah Brail.	535 0 9	.....	12a. 5g. 1kr. 1k. ...	Baisakhi Lall and others.	410 2 9	.....	51 4 0
907	Akhta, pergunnah Babra Champarun.	1,173 5 9	.....	3a. 12g. 2c. 2k. 12r. ...	Babu Salookat Doo Narayan.	206 8 1	.....	141 8 0½
921	Hazidpoor Dowlat, pergunnah ditto.	4,450 12 3	.....	8a. 1g. 1k. 1d.	Rajcoomar Babu, Deo Nunden Singh and others.	2,240 13 2	.....	113 8 6½
296	Chiknowtah, pergunnah ditto.	3,311 4 10	.....	6a. 1c. 1d.	Babu Shumbhoo Persad, Chundika Persad and others.	1,042 14 5	.....	449 8 11½
1069	Makwodpoor Karrah, pergunnah ditto.	1,067 11 9	.....	7a. 5g.	Rajcoomar Babu, Deo Nunden Singh and others.	483 13 1	.....	25 1 9½
3494	Bidupoor, pergunnah Hajipoor.	1,707 3 3	The whole estate.	.....	Ramkishun Panday ...	1,707 3 3	156 12 0	.....
3528	Joorawanpoor, pergunnah ditto.	719 10 7	.....	16g. 2c. 2k. 5r.	Harbuns Singh ...	37 7 8	.....	6 0 6
3528	Ditto	719 10 7	.....	8g. 3c. 3r.	Deo Narayan Singh ...	10 11 0	.....	3 7 5
3528	Ditto	719 10 7	.....	19g. 3c. 2k. 2d. 15r. ...	Patul Kuer	45 0 0	.....	4 11 11
3528	Ditto	717 10 7	.....	2a. 14g. 1k. 5r.	Upnet Narayan ...	121 10 3	.....	17 8 6
3539	Maniarpoor, pergunnah ditto.	1,303 5 11	The whole estate.	.....	Bhagwat Narayan ...	1,303 5 11	205 1 4	.....
5402	Sharifpoor, pergunnah Nanpoor.	506 9 1	.....	5a. 6g. 2c. 2k.	Sher Bahadur Singh and others.	337 12 8	.....	20 14 5
9462	Eruzee Nowberrar Bungra, pergunnah Gudah Sand.	865 5 0	.....	1a. 6g. 2c. 2k.	Mangul Pershad ...	73 2 2	.....	9 0 4
9462	Ditto	865 5 0	.....	2a. 13g. 1c. 1k. 1d. ...	Debi Dutt Singh ...	144 5 4	.....	8 0 4
9462	Ditto	865 5 0	....	5a. 6g. 2c 1k. 2d. ...	Rachh Pal Singh ...	288 7 0	.....	0 1 4
9462	Ditto	865 5 0	.....	6a. 13g. 1c. 1k.	Braham Deo Narayan Singh.	360 6 6	.....	30 0 6
9894	Raja Pakurchakla, Gurjowl, pergunnah Bisarah.	958 2 8	The whole estate.	.....	Nawnidh Lall and others.	906 2 8	62 6 0	.....

Mozufferpore Collectorate, the 15th February 189 . E. B. HARRIS, Deputy Collector in charge.

NOTICE is hereby given, under section 6, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Hooghly will be put up to public and unreserved sale at the Collector's office of that district on the 24th day of March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale.

1	2	3	4	5	6	7	8	9
Touji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of the proprietors of the property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
2	Mukoondopore, pergunnah Chowmahs.	14,550 2 9	The whole estate.	.....	Rajindra Narain Nundy and others.	...	450 9 11	...
10	Radhakantobati, pergunnah Pandooa.	624 11 11	...	The entire estate except the share of which separate account has been opened.	Sreehurry Nundy and others.	596 13 11	...	89 6 0
11	Chhalalpore, pergunnah Pandooa.	707 6 2	...	Ditto ditto	Aisa Khatun *alias* Abadonnessa Bibee and others.	235 13 2	..	25 11 7
26	Mallikapore, pergunnah Baligari.	10,595 3 8	...	Ditto ditto	Nil Komul Mitter and others.	4,507 14 8	...	1,082 7 4
49	Hatisala, pergunnah Chowmahs.	11,569 5 0	...	Ditto ditto	Raja Peary Mohun Mookerjee and others.	7,712 14 0	...	1,009 10 0
54	Tenipara pergunnah Pandooa.	1,006 1 0	...	7*a.* 10*g.* 1*k.* 8*il.* 6½ *kap.* share of seventeen mouzahs, "Thaipara and others" of which separate account has been opened and marked A.	Woomadotonnessa Bibee.	470 0 0	...	8 0 0
56	Champahati, pergunnah Pandooa.	606 7 2	...	The entire estate except the share of which separate account has been opened.	Bidhoomoni Dassee and others.	598 8 6½	...	170 0 0
65	Nundingram, pergunnah Pandooa.	1,975 9 0	...	8 Annas share of the estate of which separate account has been opened and marked A.	Keshb Chundra Chatterjee.	987 13 0	...	30 0 0
117	Rajhat, pergunnah Khosalpore.	728 0 3	..	The entire estate except the share of which separate account has been opened.	Jeshunkristo Gossain and others.	265 11 3	..	35 11
159	Chatra Baday, pergunnah Boro.	740 9 5	...	Ditto ditto	Bhola Nath Mitter and others.	43 15 1	...	0 1 10
159	Ditto ditto	740 9 5	...	2*a.* 13*g.* share of the estate of which separate account has been opened and marked A.	Chandra Kanto Mookerjee and others.	145 9 4	...	4 10 0
191	Haripore, pergunnah Chowmahs.	851 3 2	...	The entire estate except the share of which separate account has been opened.	Suthdoyal Banerjee and others.	728 2 2	...	87 4 10
2074	Jeerut Chur, pergunnah Hatkanda.	532 5 6	The whole estate.	.....	Joy Kristo Mookerjee	...	246 0 0	...
3521	Digra, pergunnah Boro.	530 3 5	The whole estate.	.....	Ramdoyal Banerjee ...	...	198 0 0	..
3541	Khar Sarai, pergunnah Boro.	1,311 10 0	...	The entire estate except the share of which separate account has been opened.	Ramdoyal Banerjee ..	655 13 6	...	162 8 0
3994	Ramkristopore, pergunnah Boro.	563 14 9	...	8 Annas share of the estate of which separate account has been opened and marked A.	Rance Surnomoyee Dassee.	281 15 0	...	103 0 0
4085	Shoikpore, pergunnah Baira.	10,443 11 0	...	The entire estate except the share of which separate account has been opened.	Girish Chundra Roy and others.	1,740 3 0	..	649 7

Hooghly Collectorate, the 14th February 1890. MAHOMED ISRAIL, for Collector of Hooghly.

NOTICE is hereby given, under section 6, Act XI of 1859, section 11, Act VII (B.C.) of 1868, and Act II (B.C.) of 1871, that the undermentioned dependent tenures in the Satkania Khas Mehal in the district of Chittagong will be put up to public and unreserved sale at the Collector's office of that district on the 26th day of March 1890 for arrears of rent and cesses remaining unpaid after the latest day of payment, the 26th day of December 1889.

Mehal Noabad.

Serial No.	Nos. of tenures on Register No. 1.	Names of tenures and their situations.	Annual Rental		The amount of arrears for which the tenures to be sold.			Remarks.
			Rent.	Cesses.	Rent.	Cesses.	Total.	
			Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1	6 / 1622	*Thanna Satkania, mouzah Napara.* Taluk Raj Kumar Roy and Brojeshwari, baboit taluk Bisheshwari Naba Kumar, No. 541–468.	1,017 2 0	44 8 6	310 0 0	13 7 0	323 7 0	The entire taluks will be sold.
2	20 / 430	*Thanna Satkania, mouzah Chambal.* Taluk Tajannissa Chowdhuranee ...	1,193 4 10	176 13 6	745 4 10	110 6 6	855 11 4	

C. P CASPERSZ, Offg. Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Nuddea will be put up for sale at the Collector's office of that district on the 28th March 1890, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
425	Paverpore, pergunnah Futtehjungpore.	3,414 9 6	.....	5a. 10g. 2k. 17½til share bearing No. 425-0.	Kala Chand Biswas and others.	1,175 6 11	.....	1 5 3
				2nd Class Mehals.				
814	Char Bhabanandadyar, pergunnah Bhabanandadyar.	1,160 5 0	Whole est to.	.....	Messrs. Robert Watson and Co. and others.	.....	7,881 6 9	.....
815	Ditto ditto ..	1,160 5 0	Ditto ...	.....	Sreekrishna Bhowmik and others.	.....	3,077 14 2	.....

Nuddea Collectorate, the 15th February 1890. N. K. BOSE, Covtd. Deputy Collector in charge.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, and under Act VII (B.C.) of 1868, that the undermentioned estates or shares of estates in the district of Mymensingh will be put up for sale at the Collector's Office of that district on the 25th March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
9	Zemindari pergunnah Attiah, hissa 2½ annas.	6,729 2 0	.....	Ejmali share exclusive of the separate accounts opened under sections 10 and 11 of Act 11 of 1859.	Nasamon Nessa Khanum Chowdhurain and others.	2,418 8 0	.....	36 6 6
70	Zemindari pergunnah Jumshaye.	10,525 14 0	.....	Separate share 2 annas 5 gds. 2 cr. 6 dips.	L. M. Pogose, L. G. Mary Pogose and others.	1,503 12 0	.....	372 15 5
90	Zemindari hissa 4½ annas with bojabota taluq, pergunnah Nasirujial.	7,197 10 0	.....	Separate share 11 gds. 2cr. 2 kg 10 til. of Kismut Singdha.	Sheik Hasari and others.	1 10 0	.....	1 4 0
96	Ditto ditto ...	7,197 10 0	.....	1das. of taluq Dip Chandra Rai.	Mohim Chandra Roy Chowdhuri.	204 5 0	.....	70 0 0
90	Ditto ditto ...	7,197 10 0	.....	12½gds. share of the estate.	Mahamed Mafidar Kohoman.	230 12 0	.....	79 13 0
121	Thane-war Badia, pergunnah Nasirujial.	720 10 0	.....	14ans. 19gds. 2cr, 2kg. ejmali share.	Apisullah Bhuya and others.	711 2 0	.....	275 4 0
124	Payandaboy, hissa 13 as. 6 gds. 2 cr. 2 kranta tuppeh Hasradi.	1,796 2 0	.....	7½as. share of Kismat Patua Bhanas, 6½as. share of Nagor Hasradi, 2as. of Sir Masun, 8 gds. of chakley Maha atpur and 16as. of othor mouzas.	Upendra Kishore Roy Chowdury and others.	358 15 0	.....	24 9 0
137	Zemindari pergunnah Susung.	1,988 4 0	.....	15gds. 1cr. 2kranta and 10til share of the estate.	Joy Nath Roy ...	96 1 0	.....	33 5 0
	Ditto ditto ...	1,988 4 0	.....	8gds. 1cr. 2kranta 1 til share of the estate.	Biswesewari Debia and others.	58 5 0	.....	29 1 0
144	Zemindari pergunnah Sherepur, hissa 1a. 1kg.	2,643 8 0	.....	Joint share exclusive of separate account opened under Act XI of 1859.	Dharani Kanta Chowdhuri and others.	1,614 1 0	.....	3 14 6
144	Ditto ditto ...	2,643 8 0	.....	2a. 14g. 3cr. 3 dips separate share of the estate.	Har Kumar Chowdhuri.	453 3 0	.....	148 9 0
5000	Char Ghugra Kandi, pergunnah Sherepur.	765 15 0	Whole ..	.....	Radha Ballav Chowdhuri and others.	.....	2 0 0	.....
6179	Juar Jagat Char, pergunnah Bardakhat, tuppeh Kurikhayi.	754 8 0	.....	1 anna separate share of the estate.	Ram Keshab Shaha and others.	47 3 0	.....	25 5 9
7503	Taluq Nurunessa Khanum with ejmali mouzah Taratia Digar, tuppeh Ranbhawal.	1,208 0 0	Whole ..	.....	Administrator General of Bengal and others.	.....	140 9 8	.....
				Second class.				
5013	Chak Shakchura, Tuppeh Ranbhawal.	511 0 0	.....	15ans. 17g. share of the estate.	Goloke Chandra Bhattachariya.	506 4 0	.....	136 6 9
5398	Char Jungldi and others, pergunnah Sherepur.	1,220 0 0	Whole ...	.....	Kishori Mohan Chowdhuri and others.	.....	104 12 9	.....

Mymensingh Collectorate, the 14th February 1890. JUGGOBONDHU KHAN, Deputy Collector in charge.

NOTICE is hereby given, under sections 6 and 13 of Act XI of 1859, that the undermentioned estates or shares of estates in the district of Tipperah will be put up for sale at the Collector's office of that district on the 26th March 1890, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale.

1	2	3	4	5	6	7	8	9	10
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.	REMARKS.
30	Kismat *Ia.* 6*g.* 2*c.* 1*k.* 4*d t.*, pergunnah Bardakhat.	Rs. A. P. 13,319 4 9	.....	3*a.* 1$\frac{1}{8}$*kara* share.	Srimati Barni Khanam and and others.	Rs. A. P. K. 2,508 0 8 2½	Rs. A. P.	Rs. A. P. K. 1,157 1 7 5 due up to Agrahayan 1296 B.S.	Accounts are separated under section 10 of Act XI of 1859.
36	Ditto ...	13,319 4 0	.....	14*g.* 1*kara* 2,759,713,779 *kt.* share.	Nabin Chandra Das Roy and others.	599 9 2 14½	.....	64 9 5 2 ditto.	Remaining portion that has not been separated.
30	Kismat 3*a.*, pergunnah Choudhargrao.	1,360 0 6	.....	4*a.* share ...	Ambika Charan Lashkar and others.	340 0 0 17½	.....	46 2 0 12½ ditto.	Ditto ditto.
230	Taluk Ramdhan Majumder, pergunnah Mohabutpur.	1,189 13 10	.....	10*a.* 13*g.* 1*kara* 1*kt.* share.	Alam Rajah *alias* Idhan-mazi Chowdry and others.	793 3 11 0	.....	92 0 11 0 ditto.	Ditto ditto.
255	Taluk Shahazadi Khanam, pergunnah Narayanpur.	746 10 8	.....	3*a.* 11*g.* 1*kara* 2*kt.* share.	Srimati Shafarunessa Bibi and others.	105 14 9 9½	.....	0 5 0 0 ditto.	Ditto ditto.
372	Mouzah Ahamudpur, pergunnah Bardakhat.	1,228 6 6	.....	5*a.* 6*g.* 2*kara* 2*kt.*	Ishan Chandra Roy.	409 7 4 0	.....	139 5 1 0 for kist November 1889.	Ditto ditto.
401	Jowar Bisharah, pergunnah Bardakhat.	3,141 3 0	.....	5*a.* 6*g.* 2*kara* 2*kt.*	Ditto ...	1,047 1 0 0	.....	355 5 8 0 ditto.	Ditto ditto.
455	Jowar Kalai Gobindapur, pergunnah Bardakhat.	3,360 0 0	Whole...	.....	Golam Moula ...	.....	110 0 0 for kist November 1889.	.....	.....
1925	Chur Nagarerkundi, No. 211, pergunnah Utter Shahapur, resumed under Regulation 2 of 1819.	1,290 10 9	Do. ...	.....	Dr. George Manook and others.	.....	206 3 11 ditto.	.....	Property of individuals settled for 11 years from 1294 to 1304 B.S.
193	Mouzah Gangercoat, pergunnah Bardakhat.	895 0 0	Do. ...	.....	Braja Nath Roychowdry and others.	.....	76 14 5 ditto.	.....	Meadi taluk settled for 17 years from 1288 to 1304 B.S.
1933	Jowar Tinchitta, pergunnah Bardakhat.	963 12 3	Do. ...	.....	Durga Charan Das Majumder and others.	.....	210 5 3 ditto.	.....	Meadi taluk settled for 18 years from 1287 to 1304 B.S.
1933	Mouzah Ddiarah Chairpara, pergunnah Bardakhat.	1,451 1 3	Do. ...	.....	Kali Das Bhadra and others.	.....	277 12 0 ditto.	.....	Meadi taluk settled for 14 years from 1291 to 1304 B.S.
1933	Jowar Rasullabad, pergunnah Bardakhat.	3,969 14 11	Do. ...	.....	Kamalakanta Padder and others.	.....	1,364 10 6 ditto.	.....	Meadi taluk settled for 13 years from 1292 to 1304 B.S.
1933	Jowar Daulatpur, tappah Kurikhai, pergunnah Bardakhat.	1,436 12 0	Do. ...	.....	Former owner—Ram Gopal Chakraborty and others. Auction purchaser—Mohesh Chandra Chakravarti. Sale not yet confirmed.	.....	493 14 0 ditto.	.....	Meadi taluk settled for 50 years from 1261 to 1310 B.S.

Tipperah Collectorate, the 15th February 1890.

R. T. GREER, Offg. Collector.

NOTICE is hereby given, under sections 6 and 13 of Act XI of 1859, that the undermentioned estates in the district of Moorshedabad will be put up for sale at the Collector's office of that district on 21st March 1890, corresponding with 9th Choitro, Friday, 1296 (B.S.), for arrears of revenue due up to 13th January 1890.

1	2	3	4	5	6	7	8	9	10
Towji No.	Name of mehal and pergunnah.	Sudder jumma of the whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.	REMARKS.
9	Kismut pergunnah Kasipore, pergunnah Kasipore.	Rs. A. P. 8,074 3 0	.....	1*a.* 8*g.* 9*kgs.* ...	Srinath Roy Chowdhury, &c.	Rs. A. P. 720 7 0	Rs. A. P.	Rs. A. P. 53 0 4	Of the entire estate, 1*a.* 8*g.* 9*kgs.* share belonging to Srinath Roy Chowdhury, &c., the sudder jumma of which is Rs. 720-7, will be sold.
368	Kismut Huda Barnagar, pergunnah Muraripore.	4,062 13 1 Police 72 2 4	.....	8*a.* 19*g.* 2*karas*	Moharanee Brojo Sundari Debya.	2,277 10 11 Police 40 8 6	.....	963 8 10 Police 10 14 0	Of the entire estate, joint property (jimali) of 8*a.* 19*g.* 2*karas* belonging to Brojo Sundari Debya, the sudder jumma of which is Rs. 2,318-3-11 will be sold.
		4,134 15 5				2,318 3 11	15 16 5	974 6 10	
407	Kismut mouzah Syud Kulutia, pergunnah Fatehsingh.	570 11 1	Entire mehal.	.....	Syud Fasiel Karim, &c.				
967	Kismut Gunj Jangipore, pergunnah Gonkur.	714 8 11	Ditto .	.....	Bepin Behari Nath	.....	179 14 10	.....	
1464	North of kismut Jangipore, char Enayenagar, Balichata and Khiderpore.	536 3 0	Ditto ...	.....	Proprietress and settlement-maker, Rukshmini Barmanya.	.....	Current 386 0 0 Arrear 1,436 9 6 1,822 9 6	.....	The proprietary and settlement right of the estate from 1st April 1887 up to 31st March 1894 will be sold.

Moorshedabad Collectorate, dated Berhampore, the 13th February 1890.

J. G. RITCHIE, Offg. Collector.

Statement of the Affairs of the Bank of Bengal for the week ending 11th February 1890.

LIABILITIES.

	Rs.	A.	P.
Capital paid up	2,00,00,000	0	0
Reserve Fund	58,00,000	0	0
Public Deposits at Head Office ... ... Rs. 84,21,101 3 2			
Ditto ditto at Branches ,, 1,02,98,573 2 11	1,87,19,674	6	1
Other Deposits at Head Office and Branches	3,02,10,413	3	10
Bank Post Bills, &c.	4,86,545	6	1
Sundries	9,63 519	3	11
Rupees ...	7,61,80,182	3	11

ASSETS.

	Rs.	A.	P.
Government Securities	20,48,940	0	0
Other authorized Investments	70,00,296	0	0
Loans on Government and other authorized Securities	1,56,52,754	9	3
Accounts of credit on ditto ditto	1 06,63,753	4	1
Bills discounted and purchased	1,99,39,279	8	11
Balances with other Banks	6,86,706	0	5
Bullion	1,73,814	10	6
Dead Stock	12,26.410	2	1
Stamps	13,186	11	0
Sundries	3,14,519	15	7
	5,77,19,660	13	10
Cash and Currency Notes at Head Office ... Rs. 63,09,868 12 3			
Cash and Currency Notes at Branches .. ,, 1,21,50,652 9 10	1,84,60,521	6	1
Rupees ...	7,61,80,182	3	11

BANK OF BENGAL,
Calcutta, 13th February 1890.

F. T. LEWIS, Offg. Chief Acctt.
Rate for Demand Loans 10 per cent.
Percentage 36·6.

By order of the Directors.
W. D. CRUICKSHANK,
Secy. and Treasurer.
(3549 1)

Oudh Forest Department.

BAHRAMGHAT DEPOT.

ON THE OUDH AND ROHILKHAND RAILWAY.

FROM this date the prices of all beams and scantlings supplied from this depôt will be as follows:—

BEAMS.—21 feet length, at Rs. 2-10 per cubic foot.
22 ,, ,, 2-12 ,,
23 ,, ,, 2-14 ,,
24 ,, ,, 3 ,,

Above the length given two annas per foot run will be charged. Any inches over the foot will be charged as a foot.

SCANTLINGS—From 12 to 20 feet, at Rs. 2-8 per c. ft.
Under 12 and over 7 ,, 2-4 ,,
Under 7 feet ,, 2 ,,

The above prices are for ordinary building purposes For *Planking Sleepers*, &c., special rates will be fixed by agreement.

The Department will still take orders for buildings all over at Rs. 2-4 per cubic foot, provided the scantlings are taken in fair proportion.

Second and Third Class Timber will be sold and price fixed by agreement.

Auction Sales will be held from time to time to clear off stock.

For further particulars apply to the Officer in charge.

By order of the Conservator of Forests, N. W. P. and Oudh, Oudh Circle.

KANHYA LAL,
Sub-Assistant Conservator of Forests,
Bahramghat Division.

Barhamghat, the 1st April 1886.

Government Cinchona Febrifuge.

THIS preparation is an efficient substitute for Quinine and can be purchased by Government officers for public and charitable purposes, and by any one taking *twenty pounds* at a time from the Superintendent, Botanic Garden, Calcutta, *for cash only*, at the following rates:—per four ounce tin, *Rs.* 3-14; per eight ounce tin, *Rs.* 7-4; per pound tin, *Rs.* 14. The general public can be supplied by the Superintendent, Botanic Garden, *for cash only*, at the undernoted rates:—per four ounce tin, *Rs.* 4-14; per eight ounce tin, *Rs.* 9-4; per pound tin, Rs. 17-8. This medicine is also sold by the principal European and Native druggists in Calcutta. Postage four annas per 4 oz. tin, eight annas per 8 oz. tin, and twelve annas per pound tin in addition to the foregoing rates.

Jheel Press Company, "Limited," in Liquidation.

A GENERAL Meeting will be held at the Registered Office of the Company on Monday, 17th March 1890, at noon, to receive the final accounts of the liquidation.

J. D. MAXWELL, Liquidator.
Calcutta, the 15th February 1890. (3553-1)

Soom Tea Company, "Limited."

NOTICE is hereby given that the Ordinary General Meeting of Shareholders of the above Company will be held at the Registered Office, No. 4, Mangoe Lane, Calcutta, on Saturday, the 22nd February next, at 10-30 o'clock A M, for the purpose of receiving the Directors' Report, passing the accounts for the year ending 31st December 1889, declaring a dividend and transacting such other business as may be brought before the Meeting.

By order of the Board.
WILLIAMSON, MAGOR & Co., Secretaries.
CALCUTTA, the 21st January 1890. (3462-2)

Bishnauth Tea Company, Limited.

NOTICE is hereby given that an Extraordinary General Meeting of Shareholders of the above Company will be held at the Registered Office, No. 4, Mangoe Lane, Calcutta, on Wednesday, the 19th February 1890, at 12 o'clock noon, for the purpose of declaring an *ad interim* dividend on account of season 1889, and transacting such other business as may be brought before the meeting.

By order of the Board.
WILLIAMSON, MAGOR & Co., Secretaries.
Calcutta, 24th January 1890. (3477—2)

Great Eastern Hotel Wine and General Purveying Company, "Limited."

NOTICE is hereby given that an *ad interim* dividend of 2½ per cent., equivalent to Rs. 2-8 per share, will be payable, free of income-tax, on and after Monday, the 3rd March next, to Shareholders whose names are on the Company's Register on the 23rd instant.

In accordance with the Articles of Association, the Transfer Register will be closed from the 24th February to 2nd March, both days inclusive.

By order of the Board,
E. F. LONGLEY, Secretary.
Calcutta, 15th February 1890. (3551—1)

Lost.

THE lower halves of the Government Promissory Notes Nos. 236782 and 236783 of the 4 per cent. loan of 1865 for Rs. 500 each, originally standing in the name of the Bank of Bengal, and last endorsed to General Dumber Shum Shere Jung Bahadur Rana, the proprietor, by whom it was never endorsed to any other person, having been lost, notice is hereby given that payment of the above notes and the interest thereupon have been stopped at the Public Debt Office, Bank of Bengal, Calcutta, and that application is about to be made for the issue of a duplicate in favour of the proprietor. The public are cautioned against purchasing or otherwise dealing with the abovementioned securities.

RAKHAL CHUNDRA CHATTERJEE, Secretary to the Representative of the Government of Nepal.
78, Dhurumtola Street, the 6th February 1890.
(3520—3)

Statement of Government Promissory Notes enfaced for payment of Interest in London, under deduction of amount re-transferred to India, and outstanding in the Books of the Bank of Bengal on the 15th February 1890.

PARTICULARS.	3½ per cent. transfer loan of 1853-54.	4 PER CENT. LOANS							4½ PER CENT. LOANS				Transfer loan of 1879, seven shillings per cent. portion.	5 per cent. loan of 1856-57.	GRAND TOTAL.
		Of 1832-33.	Of 1835-36.	Of 1842-43.	Of 1854-55.	Transfer of 1865.	Reduced 4 per cent. loan of 1879.	Total.	Of 1870.	Of 1878.	Transfer loan of 1879 4½ per cent. portion.	Total			
Balance of 31st January 1890 ..	54,700	11,29,387	25,25,900	2,48,46,000	1,06,71,800	3,94,72,500	1,98,76,700	9,85,22,287	39,500	71,48,000	11,08,59,600	11,80,47,100	1,33,800	32,200	21,67,90,087
ADD—															
Amount enfaced at Madras between 1st and 15th February 1890	.....	.....	.....	4,500	.....	5,000	..	9,500	.....	.....	2,600	2,600	.. ...	.....	12,100
Amount enfaced at Bombay between 1st and 15th February 1890	.....	.....	.....	2,500	1,000	500	... ..	4,000	.....	...	.....	.....	.....	.....	4,000
Amount enfaced at Calcutta between 1st and 15th February 1890	.....	.....	... ..	14,000	23,700	2,000	.....	39,700	.....	.	41,100	41,100	.....	.....	80,800
DEDUCT—	54,700	11,29,387	25,25,900	2,48,67,000	1,06,96,500	3,94,80,000	1,98,76,700	9,85,75,487	39,500	71,48,000	11,09,03,300	11,80,90,800	1,33,800	32,200	21,68,86,987
Amount written off in the London registers	... ..	.....	.....	1,90,000	65,200	1,66,500	4,000	4,25,700	.. ..	.....	63,500	63,500	.....	.....	4,89,200
Balance on 15th February 1890 ...	54.700	11,29,337	25,25,900	2.46,77,000	1,06,31,300	3.93,13,500	1,98,72,700	9,81,49.787	39 500	71,48.000	11,08,39,800	11,80,27,300	1,33,800	32,200	21,63,97,787

NOTE.—From 9th June 1867 to 15th Dec. 1889—Enfaced from India 6,175 lakhs; re-transferred from London 5,347 lakhs.
" 16th Dec. 1889 " 31st " " " " 9 " " " " 11 "
" 1st Jan. 1890 " 15th Jan. 1890 " " " 5 " " " " 21 "
" 16th " " " 31st " " " " " 3 " " " " 3 "
" 1st Feb. " " 15th Feb " " " " 1 " " " " 5 "

6,193 5.387
5,387

Balance against India ... 806 lakhs.

DEBT OFFICE, BANK OF BENGAL,
...utta, the 17th February 1890.

(3559—1)

W. D. CRUICKSHANK
Secretary and Treasurer.

Commissioners for making Improvements in the Port of Calcutta.

NOTICE

UNDER SECTION 69 OF ACT V (B.C.) OF 1870.

THE following packages, landed at the Jetties from the undermentioned ships, have been removed to the Commissioners' Import Warehouse, where they remain at the risk and expense of the owners. If not cleared within two months from the date stated against each item, they will be sold under section 72 of the said Act :—

Date of removal to Import Warehouse.		Number, mark and description.	Consignees.	Ships.
1890.				
Feb.	1	4 Packages, 426 in a diamond, A B & Co. outside ...	Order	S. S. "Rosetta."
,,	1	2 Cases, 104 in a diamond, A B & Co. outside ...	Ditto	Ditto.
,,	1	1 Case, 155 in a diamond, A B & Co. outside ...	Ditto	Ditto.
,,	6	1 Case, A H C	Ditto	Ditto.
,,	6	4 Cases, B & Co. in a diamond, L S & Co. outside ...	Ditto	Ditto.
,,	6	1 Case, 25 in a diamond, B B below	Ditto	Ditto.
	6	3 Cases, 25 in a diamond, B K below	Ditto	Ditto.
	6	3 Bottles quicksilver, B	Ditto	Ditto.
	6	3 Cases, John Bless, Esq.	Addressed	Ditto.
	6	4 Crates, 1st Battn. E. L. Regtt.	Ditto	Ditto.
	6	1 Case, B C in a diamond, C & Co. top	Order	Ditto.
	6	5 Cases, 10131 in a diamond, B R & B outside ...	Ditto	Ditto.
	6	1 Case, B & Co. in a diamond	Ditto	Ditto.
	6	10 Cases, C B & Co. by S in a diamond	Ditto	Ditto.
	6	1 Case, 321 in a diamond, C below	Ditto	Ditto.
	6	1 Case, 8505 in a diamond, D U E F outside ...	Ditto	Ditto.
	6	1 Truss, 770 in a diamond	Ditto	Ditto.
	6	1 Case, 955 in a diamond, G S below	Ditto	Ditto.
	6	1 Case, 980 in a diamond, G S below	Ditto	Ditto.
	6	100 Cases, H C in a block, P P C below	Ditto	Ditto.
	6	127 Packages, no mark	Ditto	Ditto.
	6	5 Cases, J N B	Ditto	Ditto.
	6	1 Case, K in a diamond, T N S S outside ..	Ditto	Ditto.
	6	1 Package, Messrs. Lyell & Co.	Addressed	Ditto.
	6	4 Cases, L O C K E	Order	Ditto.
	6	3 Bales, 872 in a diamond. L B top	Ditto	Ditto.
	6	19 Packages, M & Co. by D in a diamond ...	Ditto	Ditto.
	6	18 Packages, M & Co. in a diamond, T G top .	Ditto	Ditto.
	6	1 Case, M & Co. in a diamond	Ditto	Ditto.
	6	2 Cases, N C J in a diamond, G A & Co. outside ...	Ditto	Ditto.
	6	1 Case, N & S in a diamond	Ditto	Ditto.
	6	1 Keg, Revd. R. Nagel	Addressed	Ditto.
	6	1 Case, N M I in a diamond	Order	Ditto.
	6	2 Cases, 1954 in a diamond, O S top	Ditto	Ditto.
	6	25 Bottles quicksilver, O	Ditto	Ditto.
	6	1 Case, O S & Co. by B	Ditto	Ditto.
	6	4 Packages, P S by 232 in a diamond, J below ...	Ditto	Ditto.
	6	2 Chairs, C F Park, Esq.	Addressed	Ditto.
	6	26 Bottles quicksilver, R	Order	Ditto.
	6	2 Cases, Mr. Risley	Addressed	Ditto.
	6	1 Case, 499 in a diamond, R C M B outside ...	Order	Ditto.
	6	2 Cases, R W	Ditto	Ditto.
	6	3 Cases, 309 in a triangle, S S top	Ditto	Ditto.
	6	3 Cases, 150 by 769 in a diamond, T B & Co. outside	Ditto	Ditto.
	6	1 Case, T N in a diamond, J G & S outside ...	Ditto	Ditto.
	6	11 Bottles quicksilver, V	Ditto	Ditto.
	6	1 Case, 926 in a diamond, W N & Co. outside ...	Ditto	Ditto.
	6	1 Case, 679 in a diamond, W N & Co.	Ditto	Ditto.
	6	9 Packages, 273 in a diamond, W T H B below ...	Ditto	Ditto.
	6	1 Case, 580 in a diamond, W below	Ditto	Ditto.
	6	1 Case, A W N Wyatt, Esq.	Addressed	Ditto.
	6	1 Parcel, K F	Order	Ditto.
	6	1 Parcel, P E Jenkins	Addressed	Ditto.
	6	1 Parcel, A Pakenham, Esq.	Ditto	Ditto.
	6	1 Case, F & P	Order	Ditto.
	5	1 Case, diamond, A G G outside	Ditto	S.S. "Rauenthaller."
	5	197 Cases, 760 in a block within a triangle	Ditto	Ditto.
	5	2 Cases, 558 in a triangle, C H L & Co. top ...	Ditto	Ditto.
	5	6 Crates, J C in a diamond, S & S C below ...	Ditto	Ditto.
	5	1 Crate, no mark, or S T & S	Ditto	Ditto.
	5	1 Case, 63 in a block within a triangle, W H N below.	Ditto	Ditto.
	5	2 Cases, B M	Ditto	Ditto.
	6	51 Packages, no mark	Ditto	Ditto.
	6	1 Bundle nail rod iron, S H or no mark ...	Ditto	Ditto.
	6	5 Bars angle iron, N G S or no mark	Ditto	Ditto.
	6	1 Iron plate, E C or no mark	Ditto	Ditto.
	6	2 Iron plates, G or no mark	Ditto	Ditto.
	6	2 Iron plates, H in a diamond, or no mark ...	Ditto	Ditto.

Date of removal to Import Warehouse.		Number, mark and description.	Consignees.	Ships.
1890.				
Feb.	6	1 Iron joist, S J C	Order ...	S S. "Rauenthaller
	6	1 Keg, N S C by M C in a diamond	Ditto ...	Ditto.
	6	1 Keg, P P C in a diamond, C & Co. top, T L Madras below.	Ditto ...	Ditto.
	6	1 Case, U H & Co.	Ditto ...	Ditto.
	3	2 Cases, A W P	Ditto ...	S.S. " City of Agra.
	3	1 Bag, C O S S	Ditto ...	Ditto.
	3	1 Bale, 494 in a triangle, C H L & Co. top	Ditto ...	Ditto.
	3	1 Case, 44 by 3936 in a diamond ...	Ditto ...	Ditto.
	3	1 Case, 45 by 3937 in a diamond ...	Ditto ...	Ditto.
	3	3 Cases, F E R in a diamond, N C top	Ditto ...	Ditto.
	3	2 Bales, H S M Y by 589 in a block ...	Ditto ...	Ditto.
	3	5 Cases, H I in a diamond, M top ...	Ditto ...	Ditto.
	3	38 Sleepers, I S R or no mark ...	Ditto ...	Ditto.
	3	1 Case, B C by S M	Ditto ...	Ditto.
	3	28 Packages, no mark	Ditto ...	Ditto.
	3	1 Casting, H H in a diamond, J M top...	Ditto ...	Ditto.
	3	1 Joist, Kalite	Ditto ...	Ditto.
	3	5 Cases, K V in a diamond, Cawnpore below	Ditto ...	Ditto.
	3	6 Cases, L O C K E	Ditto ...	Ditto.
	3	1 Case, M in a diamond	Ditto ...	Ditto.
	3	2 Cases, Messrs. T N. Sing & Son, 4, Clive Ghât Street.	Addressed ...	Ditto.
	3	1 Keg, T M & Co.	Order ...	Ditto.
	3	2 Bales, 343 in a diamond, W T H B below ...	Ditto ...	Ditto.
		1 Case, W L	Ditto ...	Ditto.
		6 Cases, 28 in a block within a triangle, W H N below.	Ditto ..	Ditto.
		1 Piece T-iron, Kalite, or no mark	Ditto ..	Ditto.
		1 Bundle, iron Runga	Ditto ...	Ditto.
		10 Bales, W in a double triangle, D below ...	Ditto ...	Ditto.

Port Commrs.' Office, Calcutta, the 15th February 1890. (3555—1) G. H. SIMMONS, Vice-Chairman.

Notice.

PURSUANT to the orders of Government, dated the 29th June 1831, particulars of the undernoted items of articles held by the Port Commissioners as Receivers of Wrecks, each article being of value above Rs. 100, are published for general information in accordance with the provisions of section 76, Act VII of 1880.

Date.	Recovery number.	Description of articles.	Weight.	Approximate value.	Where recovered.	Where lying.
		Port Approaches.	Cwt. qr. lbs.	Rs.		
16th August 1889 ...	10 P. A.	One country anchor	45 0 0	225	Poojally Creek	Port Commissioners Wreck and Anchorage yard.
22nd " " ...	11 "	One Rodgers' patent anchor	15 0 0	200	Ditto ...	Ditto.
		One chain $1\frac{3}{16}$" of 30 fathoms	37 2 3			
27th " " ...	12 "	One Rodgers' patent anchor	50 0 0	150	Shibsaria ...	Ditto.
4th September " ...	13 "	One English anchor	27 0 0	215	Budge-Budge	Ditto.
		One chain $1\frac{7}{16}$" of 15 fathoms	16 1 10			
11th " " ...	14 "	One anchor	60 0 0	300	Hinelipatam ...	Ditto.
27th November " ...	17 "	One English anchor	40 0 0	530	Kulpee ...	Ditto.
		One chain $1\frac{1}{8}$" of 15 fathoms	26 3 26			
3rd December " ...	19 "	One country anchor	23 0 0	240	Do. ...	Ditto.
		One chain $1\frac{7}{16}$" of 33 fathoms	35 3 22			
27th " " ...	21 "	One Rodgers' patent anchor	30 0 0	300	Saugor ...	Ditto.
		One chain $1\frac{1}{16}$" of 32 fathoms	48 3 0			
27th " " ...	22 "	One country anchor	50 0 0	1,060	Ditto ...	Ditto.
		One wooden stock...	.....			
		One chain $1\frac{1}{8}$" of 90 fathoms	162 3 12			
27th " " ...	23 "	One country anchor	38 0 4	960	Ditto ...	Ditto.
		One chain $1\frac{3}{16}$" of 86 fathoms	154 2 25			
8th January 1890 ...	26 "	One country anchor	15 0 0	345	Ditto ...	Ditto.
		One chain $1\frac{7}{16}$" of 55 fathoms	34 1 24			
10th " " ...	27 "	One Rodgers' patent anchor	36 3 8	1,585	Ditto ...	Ditto.
		One stock	.....			
		One chain $1\frac{7}{16}$" of 135 fathoms	274 3 8			
13th " " ...	28 "	One English anchor	43 1 23	1,530	Ditto ...	Ditto.
		One stock	8 2 0			
		One chain $2\frac{1}{16}$" of 135 fathoms	255 3 26			
0th February " ...	31 "	One country anchor	12 0 0	305	Ditto ...	Ditto.
		One chain $1\frac{3}{16}$" of 62 fathoms	40 0 26			
10th " " ...	32 "	One country anchor	13 0 0	110	Ditto ...	Ditto.
		One chain $1\frac{5}{16}$" of 12 fathoms	9 2 5			
10th " " ...	33 "	One English anchor	42 0 0	290	Ditto ...	Ditto.
		One chain $1\frac{1}{8}$" of 10 fathoms	17 3 27			

E. J. BEAUMONT, Asst. Conservator.

Port Commissioners' Office, Calcutta, the 11th February 1890. (3545 & 3546—3)

INSOLVENT ESTATES.

QUARTERLY STATEMENT MADE UP TO 30TH SEPTEMBER 1889.

ESTATES.	Whole amount of receipts.	WHOLE DISBURSEMENTS.		Balance.	Portion of balance applicable to dividends now payable.	Net balance.	Probable outturn of the dependencies.
		Dividends paid.	Other payments.				
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Alexander and Co. ...	2,91,087 1 9	2,32,414 0 9	48,899 13 8	9,773 3 4	8,968 8 2	804 11 2	Nothing further recoverable.
Adam, Scott and Co. ...	1,31,609 5 4	1,06,547 4 0	23,086 5 1	1,975 12 3	1,109 15 0	865 13 3	Ditto ditto.
Anderson and Co., William ...	2,678 8 1	.....	1,845 4 3	833 3 10	625 11 6	207 8 4	Ditto ditto.
Allen, Deffell and Co. ...	1,57,553 10 4	1,26,063 13 5	30,521 2 3	968 10 8	946 1 5	22 9 3	Ditto ditto.
Asiatic Marine Insurance Office ...	8,40,361 11 1	6,92,443 5 11	1,38,990 12 9	8,927 8 5	8,621 4 0	306 4 5	Ditto ditto.
Alexander, Wallace & Co. ...	24,142 11 7	16,356 2 7	6,404 3 1	1,382 5 11	1,268 10 4	113 11 7	Ditto ditto.
Anstruther and Co. ...	17,005 3 3	7,346 9 10	3,747 4 1	5,911 5 4	5,516 5 7	394 15 9	Ditto ditto.
Anderson, George ...	1,806 12 6	.....	953 9 3	853 3 3	733 0 2	120 3 1	Ditto ditto.
Atkinson, W. L. ...	17,234 12 9	5,330 14 8	8,863 2 11	3,040 11 2	2,357 11 2	683 0 0	Ditto ditto.
Arrakiel, J. G. ...	1,024 5 6	52 6 1	394 15 9	576 15 8	129 2 7	447 13 1	Ditto ditto.
Audhor Chunder Shaw ...	18,849 9 11	8,134 4 9	8,242 15 4	2,472 5 10	1,207 3 3	1,265 2 7	Ditto ditto.
Aycab Hadjee Abdool Rohomon ...	11,461 10 3	7,788 13 0	2,088 9 11	1,584 3 4	1,469 13 4	114 6 0	Ditto ditto.
Anundo Mohun Dutt and another ...	3,739 2 3	367 1 1	2,501 14 2	870 3 0	557 11 5	312 7 7	Ditto ditto.
Arrathoon, C. M. (M. J. Galstaun and Co.)	11,291 11 0	8,312 14 3	1,837 0 10	1,141 11 11	1,121 15 10	19 12 1	Ditto ditto.
Amerto Krisna Bose ...	1,401 11 0	.....	.....	1,401 11 0	.....	1,401 11 0	Outstanding: in course of recovery.
Andrews, J. ...	1,939 8 5	950 10 0	348 5 8	640 8 9	45 3 3	595 5 6	Ditto ditto.
Balfour and Co. ...	5,61,316 3 6	3,04,469 3 4	2,55,181 14 1	1,665 2 1	713 10 2	951 7 11	Nothing further recoverable.
Boyd and Co. ...	80,673 14 3	10,773 10 4	13,425 1 11	6,475 2 0	6,364 3 4	110 14 8	Ditto ditto.
Bruce, Shand and Co. ...	8,36,536 3 5	4,96,777 1 0	3,32,316 3 0	7,442 15 5	6,618 1 2	824 14 8	Ditto ditto.
Bischoff, Beer and Co. ...	2,640 5 8	18 11 6	2,107 13 5	513 12 9	449 13 5	63 15 4	Ditto ditto.
Bodry, John (1st) ...	1,705 7 1	79 1 11	547 6 0	1,078 15 2	582 1 8	496 13 6	Ditto ditto.
Bluett, James ...	873 0 0	40 0 11	164 14 1	668 1 0	610 0 11	58 0 1	Ditto ditto.
Bhoobun Mohun Mitter ...	4,000 0 0	.....	2,163 7 9	1,836 8 3	1,794 12 6	41 11 9	Ditto ditto.
Baboo Lall Shaw and others ...	1,35,530 2 7	87,983 0 10	30,736 10 9	16,810 7 0	16,562 15 0	247 8 0	Ditto ditto.
Buldeo Doss (Buldeo Doss Chuttoorbhooj)	3,802 3 1	1,424 5 4	985 1 6	1,392 12 3	1,386 12 11	5 15 4	Ditto ditto.
Bhore Mull Gondaka ...	16,319 3 6	11,188 14 2	3,226 1 6	1,904 3 10	1,774 6 11	129 12 11	Ditto ditto.
Brunet, Salix, and Latapie ...	15,235 0 0	8,047 9 5	5,625 0 5	1,562 6 2	1,445 10 8	116 11 6	Ditto ditto.

Brinda	r Setti	...	4,306	0	3	....			1,379	0	2	2,927	0	1			2,927	0	1	Schedule not filed as yet.
Bagot,		...	4,149	4	9	39	3	7	3,498	4	2	611	13	0	4	5	209	8	7	Nothing further recoverable.
Bodry,		...	4,425	4	6	1,112	3	5	2,384	6	10	928	10	3	642	13	0	285	13	3	Ditto ditto.
Bellet		...	1,680	0	0	1,024	3	10	116	13	10	538	4	4	370	9	10	167	10	6	Ditto ditto.
Bunga	hettry and others (Nan-		1,04,279	10	2	71,344	8	8	16,555	1	2	6,380	0	4	5,898	8	8	481	7	8	Ditto ditto.
noo	ry).																			
Bhoob	Bannerjea and another		1,58,927	12	8	36,465	9	4	16,176	2	5	6,286	0	11	4,938	12	0	1,347	4	11	Ditto ditto.
Beer (	loo and another	...	2,201	8	3	591	5	6	946	8	9	663	10	0	641	9	3	22	0	9	Ditto ditto.
Bhola		...	3,100	0	0	29	1	2	2,449	11	7	620	9	3	524	5	11	96	3	4	Ditto ditto.
Bona	ook Small	...				..			..			...			..	..		..		
Brews	nd W. Nicholl (Wilson,		794	0	10	..			.....			794	0	10	.....		794	0	10	Schedule not filed as yet.
Ma	Co.)																			
Baker	arate Estate	...	2,337	15	3	1,010	14	10	123	9	0	1,203	7	5	1,157	14	6	45	8	11	Nothing further recoverable.
Bheek	atty	...	1,452	6	4	834	0	8	74	6	5	543	15	3	310	4	5	233	10	10	Ditto ditto.
Colvir		...	1,84,427	8	8	1,36,470	0	10	31,296	10	8	6,660	3	2	6,586	15	0	73	4	2	Nothing further recoverable.
Crutt	illop and Co.	...	99,959	11	1	72,895	6	5	20,263	11	4	6,800	9	4	5,743	13	4	1,056	12	0	Ditto ditto.
Cocke		...	17,19,733	5	0	3,86,102	2	10	3,26,584	4	11	7,046	3	3	6,701	5	10	344	13	5	Ditto ditto.
Canny	nd another	...	21,208	5	11	17,472	0	1	2,990	11	5	745	0	5	632	14	3	112	2	2	Ditto ditto.
Crom		...	5,413	5	4	2,747	4	3	2,124	12	6	540	10	7	487	13	3	52	13	4	Ditto ditto.
Canny	seloll	...	9,623	9	3	5,676	2	8	2,212	5	4	1,735	1	3	1,523	9	7	211	7	8	Ditto ditto.
Charl	nd Co.	...	5,15,143	12	9	3,99,296	9	9	98,146	12	8	7,700	6	4	6,002	4	5	1,698	1	11	Ditto ditto.
Castel		...	3,201	7	9	2,227	5	6	264	10	2	709	8	1	372	14	3	336	9	10	Ditto ditto.
Carr,		...	11,349	3	8	9,779	1	7	952	5	9	617	2	4	603	6	5	13	11	11	Ditto ditto.
Child,		...	22,090	10	0	16,599	6	0	4,704	11	10	786	8	2	691	4	8	95	3	6	Ditto ditto.
Canto	t	...	907	10	6	196	5	8	137	7	1	573	3	9	542	11	1	30	8	8	Ditto ditto.
Christ		...	5,587	12	2	4,009	9	3	697	9	10	880	9	1	787	10	5	92	14	8	Ditto ditto.
Cole,	ry and Co.)	...	3,018	10	4	1,212	5	3	904	7	7	901	13	6	642	5	1	259	8	5	Ditto ditto.
Clark,	. Fergusson and Co.)...		23,174	8	2	12,877	0	8	7,606	1	11	2,691	5	7	1,518	12	6	1,172	9	1	Ditto ditto.
Cowie	another (Colvin, Cowie		1,62,966	8	11	91,356	4	6	63,245	15	4	8,363	11	1	6,994	7	1	1,369	4	0	Ditto ditto.
and																				
Colvill	and Co.	...	9,743	1	1	2,535	0	0	3,511	6	3	3,696	10	10	.....		3,696	10	10	Ditto ditto.
Chutt	saud	...	31,248	11	0	....			18,013	9	6	3,235	1	6	.....		3,235	1	6	Outstanding : in course of recovery.
Conti,		...	3,567	10	8	849	7	7	1,092	4	4	1,625	14	9	383	3	11	1,242	10	10	Nothing further recoverable.
Cohen	E. E. Cohen	...	1,806	3	0	280	1	10	1,012	9	4	513	7	10	317	12	5	195	11	5	Ditto ditto.
Chund	aw	...	43,972	1	6	6,220	1	6	36,801	13	0	950	3	0	920	9	6	29	9	6	Ditto ditto.
Colem		...	1,716	8	0	986	7	5	111	9	9	618	6	10	610	13	5	7	9	5	Ditto ditto.
Coverj		..	945	14	9	143	4	2	59	6	8	742	9	11	703	15	11	38	10	0	Ditto ditto.
Collin		...	2,581	6	8	....			.....			2,581	6	8	.....		2,581	6	8	Ditto ditto.
Carbe	another	...	2,436	1	0	...			296	7	10	2,139	9	2	.....		2,139	9	2	Outstanding : in course of recovery.
Dicks		...	1,843	0	2	1,039	2	3	241	14	0	56	15	11	506	13	8	55	2	3	Nothing further recoverable.
Dove,		...	12,991	0	0	10,202	7	6	2,214	0	8	5	7	10	317	0	6	257	7	4	Ditto ditto.

Estates.	Whole amount of receipts.	Whole Disbursements.		Balance	Portion of ba applicable dividends n payable.	Ne a	ible turn o dep encies
		Dividends paid.	Other payments.				
	Rs. A. P.	Rs. A. P.	Rs. A. P	Rs. A. P	Rs A. P	Rs. A. P	
tt Brothers	2,164 9 6	34 7 7	1,405 2 10	724 15 1	660 0 5	64 14 8	Nothing furt er recoverable.
Silva, John Emanuel	13,643 11 3	11,131 11 5	851 8 9	1,660 7 1	1,346 7 2	313 15 11	Ditto ditto.
DeSouza, John	1,334 0 3	.....	805 9 0	528 7 3	... ..	528 7 3	Ditto ditto.
Dumat, Alfred	6,224 5 6	1,051 12 9	2,024 3 5	3,148 5 4	2,815 3 0	333 2 4	Ditto ditto.
Durrant, Edward	2,223 1 6	816 5 4	890 8 5	516 3 9	479 10 8	36 9 1	Ditto ditto.
Dennison, G. R.	29,828 14 7	26,967 6 10	1,607 6 4	1,254 1 5	787 0 0	467 1 5	Ditto ditto.
Duff, David	2,137 12 9	1,041 8 5	489 15 9	606 4 7	483 9 4	122 11 3	Ditto ditto.
Denonauth Dey	12,182 12 4	7,804 8 7	2,315 6 4	2,062 13 5	1,631 1 4	431 12 1	Ditto ditto.
Durka Nath Mitter	5,938 12 0	731 10 10	4,641 13 5	565 3 9	447 8 9	117 11 0	Ditto ditto.
Dencnauth Paul	834 4 3	.....	119 12 9	714 7 6	.....	714 7 6	Ditto ditto.
Damoodur Doss	4,018 15 9	1,715 1 4	999 14 6	1,303 15 11	1,160 13 4	143 2 7	Ditto ditto.
Debrunner, Julius	65,912 4 7	58,106 7 4	7,188 1 7	617 11 8	491 5 3	126 6 5	Ditto ditto.
Doyal Chand Pyne and others	54,590 3 0	174 8 0	52,107 10 5	2,308 0 7	.....	2,308 0 7	Ditto ditto.
Dawood Khan Esabhai	1,797 8 9	31 11 4	1,238 4 7	527 8 10	190 5 0	337 3 10	Ditto ditto.
Debnarain Bysack and another	5,427 14 1	3,167 3 1	1,447 4 7	813 6 5	1,077 6 10	Dr. balance . 264 0 5	Outstanding in course of recove
DeCruz, W. J.	560 0 0	.. ...	.....	560 0 0	.....	560 0 0	Ditto ditto.
Ewing, Aird and Anderson	3,11,323 1 8	59,611 6 10	42,032 15 9	9,678 11 1	9,516 3 7	162 7 6	Nothing fu er recove
Ellias, M. B.	7,233 13 6	3,428 10 7	1,263 15 10	2,541 3 1	2,218 0 3	323 2 0	Ditto ditto.
Espino, Manuel Del	3,800 1 3	1,005 7 2	1,265 7 9	1,529 2 4	950 15 7	578 2 9	Ditto ditto.
Eagleton, F. A.	3,653 3 6	72 11 2	2,841 4 4	739 4 0	446 0 1	293 3 11	Ditto ditto.
Emmett and Chambers	23,491 8 3	7,305 15 2	12,954 13 11	3,230 11 2	581 13 8	2,648 13 6	Ditto ditto.
Esmile Hadjee Abdool Kurreem & ano	2,757 13 3	279 10 7	1,012 4 7	1,465 14 1	1,069 12 0	396 2 1	Ditto ditto.
Edmands, T. S. (Edmands Brothers)	21,720 9 3	19,005 7 0	2,135 8 8	579 9 7	231 14 0	347 11 7	Ditto ditto.
Fergueson and Co.	1,96,005 7 4	48,635 4 9	33,097 7 10	14,272 10 9	1,846 5 4	2,426 5 5	Ditto ditto.
Fergusson Brothers and Co.	1,47,924 5 4	68,637 12 4	75,113 15 2	4,172 9 10	3,761 0 8	411 9 2	Ditto ditto.
Foster, Rogers and Co.	6,376 9 10	857 3 7	2,294 7 11	3,224 14 4	2,542 11 8	682 2 8	Ditto ditto.
Fabian, E. D.	776 10 0	263 3 3	.....	513 6 9	.....	513 6 9	Ditto ditto.
Ferris, G. R.	2,650 0 0	67 7 6	813 2 3	1,769 6 3	1,292 1 6	477 4 9	Ditto ditto.
Fanshaw, R. F.	876 0 10	176 8 6	96 15 1	602 9 3	425 4 7	177 4 8	Ditto ditto.
Fornaro, C. (Fornaro and Huni)	27,288 4 8	17,381 1 4	9,001 15 7	905 3 4	453 12 4	451 7 0	Ditto ditto.
Ferrier, W. A.	4,900 14 0	3,422 10 10	1,056 4 8	421 14 6	208 13 4	213 1 2	Ditto ditto.

Forbes, H. T.		3,000	0	0	497	8	0	1,248	15	7	1,253	8	5	21	8	0	1,232	0	3	Ditto	ditto.
Freek, D.	...	504	10	6	.....			...	..		504	0	6	.....			504	10	6	Ditto	ditto.
Gilmour and Co.	...	47,267	5	4	23,186	11	8	19,717	10	7	4,362	5	1	...	..		4,362	15	1	Ditto	ditto.
Griffith, Curtis and Co.	...	49,784	9	8	28,262	15	3	19,201	1	0	7,320	9	5	6,991	13	5	328	12	0	Ditto	ditto.
Gordon, Stewart and Co.	...	78,183	10	4	39,924	6	8	35,568	12	4	2,690	7	4	2,632	0	10	58	6	6	Ditto	ditto.
Gubboy, A. J.	...	9,055	7	0	6,088	9	2	2,075	4	0	891	9	10	565	5	11	326	3	11	Ditto	ditto.
Gocool Doss Soonderjee	...	18,266	14	1	11,879	7	1	5,760	12	11	626	10	1	584	4	8	42	5	5	Ditto	ditto.
Golaub Chand Hemchand	...	1,586	2	0	.....			200	9	0	1,385	9	0	.....			1,385	9	0	Schedule not filed as yet.	
Gordon, G. J.	...	570	0	0	.....			48	5	0	521	1	0	493	13	11	27	13	1	Nothing further recoverable.	
Goberdhone Mullick	...	2,880	14	9	1,371	8	0	963	12	4	545	10	5	473	14	8	71	11	9	Ditto	ditto.
Golam Hossain Verjee	...	1,26,756	14	4	40,928	6	8	85,314	2	4	514	5	4	318	1	0	196	4	4	Ditto	ditto.
Grant and Sons, G.	...	5,904	8	5	3,347	1	11	2,062	13	10	494	8	8	422	15	1	71	9	7	Ditto	ditto.
Ghose and Co., R. G.	...	29,911	1	2	21,218	2	4	7,954	3	8	738	1	2	536	2	0	202	9	2	Ditto	ditto.
Gregory, M.	...	17,186	2	5	12,174	13	6	4,154	14	4	856	6	7	717	5	5	139	1	2	Ditto	ditto.
Ghaseeram	...	38,350	5	10	10,535	5	6	25,967	15	3	1,847	1	1	1,231	11	2	615	5	11	Ditto	ditto.
Gasper, N. M.	...	7,010	0	9	4,872	0	8	657	12	0	1,480	4	1	1,188	9	1	291	11	0	Ditto	ditto.
Gilmour, J. A. G.	...	512	8	0	.....			.....			512	8	0	.....			512	8	0	Ditto	ditto.
Gubboy, E. S.	...	53,783	3	0	16,747	9	8	36,070	3	1	965	6	3	862	4	9	103	1	6	Ditto	ditto.
Greedhurryloll Kannylall	...	25,979	10	1	7,438	14	5	3,276	10	7	15,264	1	1	14,066	13	6	1,197	3	7	Ditto	ditto.
Gopaul Chunder Bose	...	3,891	0	0	1,964	2	6	876	10	0	1,050	3	6	838	7	4	211	12	2	Ditto	ditto.
Gobin Chand Setab Chand (Nunsee Indrochand).		1,07,806	2	7	58,248	7	5	41,059	7	3	8,498	3	11	8,350	1	3	148	2	8	Ditto	ditto.
Gray, W., and another (Robert and Charriol).		3,14,768	4	0	91,304	10	6	42,148	3	10	81,315	5	8	72,860	4	5	8,455	1	3	Outstanding: in course of recove	
Grish Chunder Marrick and others	...	13,832	0	5	5,217	2	10	5,430	5	2	3,184	8	5	2,378	5	11	806	2	6	Ditto	ditto.
Gopaul Chunder Rage	...	2,834	15	3	1,516	0	3	770	3	2	548	1	10	505	2	9	43	9	1	Nothing further recoverable.	
Gopaul Chunder Shaw	...	25,445	6	9	14,914	4	3	9,306	4	0	1,224	4	6	308	4	3	916	10	3	Ditto	ditto.
Greedharee Lall Sadkhan and Cally Churn Sadkhan.		2,572	6	3	192	0	0	258	12	7	2,121	9	8	17	12	3	2,103	13	5	Outstanding; in course of recove	
Grish Chunder Mukerjee and Koylash Chunder Chatterjee.		2,346	6	6	.....			245	8	2	2,000	4	4	.....			2,000	14	4	Ditto	ditto.
Hurry, W. C.	...	2,763	9	2	.....			1,937	14	8	825	0	6	.....			825	10	6	Nothing further recoverable.	
Hoffman and Co.	...	25,170	12	5	6,933	13	3	17,650	8	0	586	7	2	356	3	4	230	3	10	Ditto	ditto.
Hughesdon Brothers	...	2,44,226	5	7	39,290	4	8	2,04,248	13	9	687	3	2	542	5	9	144	13	5	Ditto	ditto.
Hudson, Nathaniel	...	2,225	11	3	655	5	6	461	2	1	1,109	3	8	936	15	2	172	4	6	Ditto	ditto.
Hoffe, William	...	1,346	8	6	2	0	0	672	1	1	672	7	5	613	3	1	59	4	4	Ditto	ditto.
Huffnagle and Co., Charles	...	1,320	4	7	70	11	11	342	4	1	907	4	7	825	8	6	81	12	1	Ditto	ditto.
Heeralall Hunnomontoram	...	752	14	3	.....			61	0	0	691	4	3	.....			691	14	3	Ditto	ditto.
Holloway, William	..	1,055	11	11	76	8	8	324	8	7	654	0	8	614	10	6	40	0	2	Ditto	ditto.
Honigberger, William	..	1,001	5	6	.....			344	0	0	657	5	6	.....			657	5	6	Schedule not filed as yet.	
Hanlon, E.	...	2,069	9	0	100	13	4	1,122	7	9	846	3	11	777	2	4	69	1	7	Nothing further recoverable.	
Howard Brothers	...	10,421	9	10	6,168	12	7	3,394	13	6	857	5	9	630	5	0	227	10	9	Ditto	ditto.
Hill, James (Barham, Hill and Co.)	...	32,114	9	9	7,337	9	6	10,861	5	8	3,915	0	7	3,526	2	10	389	7	9	Ditto	ditto.
Hurry Narain Khettry	...	10,178	5	9	4,209	9	3	3,808	13	1	2,159	5	5	2,095	4	6	64	10	11	Ditto	ditto.
Huckting and Co., B. H.	...	4,872	5	3	1,995	5	3	1,846	12	9	1,030	3	3	963	7	7	66	11	8	Ditto	ditto.

Estates.	Whole amount of receipts.	Whole Disbursements.		Balance.	Portion of balance applicable to dividends now payable.	Net balance.	Probable outturn of the dependencies.
		Dividends paid.	Other payments.				
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Hutchison, J. H. (L. W. Toulmin & Co.)	4,043 11 4	2,034 11 10	507 9 0	1,501 6 6	1,444 11 9	56 10 9	Nothing further recoverable.
Hurro Nauth Mozoomdar and others ...	7,700 0 0	3,015 8 2	2,298 14 11	2,385 8 11	2,378 0 5	7 8 6	Ditto ditto.
Heeralall (Munnoolall Heeralall) ...	19,704 0 3	8,519 10 5	7,117 2 10	4,067 3 0	4,061 10 7	5 8 5	Ditto ditto.
Hubbard, C. E. ...	4,154 2 8	1,855 0 3	690 0 4	1,609 2 1	1,601 2 3	7 15 10	Ditto ditto.
Heralall Dodooriah ...	2,965 14 3	1,498 4 4	357 4 10	1,110 5 1	395 1 10	715 3 3	Ditto ditto.
Hay, William (Stuart & Co.) ...	1,999 10 3	.....	1,002 3 9	997 6 6	.....	997 6 6	Ditto ditto.
Heeranundo (Buddermull Heeranund) ...	1,212 15 3	447 15 1	88 2 1	676 14 1	602 3 11	74 10 2	Ditto ditto.
Hadjee Heedatoolah and others ...	1,17,397 3 0	87,094 0 0	16,684 2 10	13,619 0 2	3,875 9 8	9,743 6 6	Outstanding: in course of recovery.
Hurruck Chand and Johoory Mull (Kunyalall Hurruck Chand).	12,596 6 0	5,996 13 7	624 8 4	5,975 0 1	3,266 7 8	2,708 8 5	Ditto ditto.
Hunutram Balakee Dass ...	2,051 13 0	.....	183 14 5	1,867 14 7	.....	1,867 14 7	Ditto ditto.
Hadjee Noormahamed Jakariah ..	3,941 1 3	.....	962 15 9	2,978 1 6	.....	2,978 1 6	Ditto ditto.
Issur Chunder Mill ...	8,546 1 6	490 3 11	6,149 15 6	1,905 14 1	1,880 12 0	25 2 1	Nothing further recoverable.
Issen Chunder Sein ...	12,002 4 9	5,835 13 1	5,586 14 6	579 9 2	568 7 8	11 1 6	Ditto ditto.
Issur Chunder Sein and another ...	631 14 9	.....	59 12 8	572 2 1	530 14 7	41 3 6	Ditto ditto.
Jansen & Co., J. ...	20,002 10 9	139 11 5	15,872 5 0	3,990 10 4	3,766 5 1	224 5 3	Ditto ditto.
Juggeshur Laha ...	34,388 4 1	16,701 4 2	15,519 2 4	2,167 13 7	1,851 6 1	316 7 6	Ditto ditto.
Jadub Chunder Seal ...	2,094 6 7	374 1 10	907 2 9	813 2 0	580 12 8	232 5 4	Ditto ditto.
Jordon, J. S. ...	5,376 8 0	3,582 9 6	984 15 5	808 15 1	545 0 7	263 14 6	Ditto ditto.
Juggenprosaud ...	960 8 9	.....	223 9 0	736 15 9	.....	736 15 9	Ditto ditto.
Jacob, Charles ...	933 8 0	.....	415 13 4	517 10 8	454 6 7	63 4 1	Ditto ditto.
Judah, J. E. ...	2,186 15 0	.....	1,450 4 7	736 10 5	643 2 11	93 7 6	Ditto ditto.
Johurlall Mokeem ...	1,656 0 0	648 15 0	262 4 7	744 12 5	373 13 9	370 14 8	Ditto ditto.
Joakim, M. C. ...	7,754 15 3	4,223 8 11	2,422 12 5	1,108 9 11	838 9 7	270 0 4	Ditto ditto.
Jogendro Nauth Cowar ...	5,943 0 0	1,391 15 3	3,571 12 3	979 4 6	806 0 9	173 3 9	Ditto ditto.
Joitroop Chooney Lall ...	8,229 11 4	4,349 11 2	1,951 7 6	1,928 8 8	1,861 3 1	67 5 7	Ditto ditto.
Joogole Kissore Sewlall Futteah Chund ...	9,544 8 6	4,144 8 6	2,262 11 9	3,137 0 11	2,856 14 5	280 2 6	Ditto ditto.
Kemp, H. C. (T. Hyde Gardiner and Co.)	33,765 12 9	27,374 0 2	5,817 5 1	574 7 6	135 0 4	439 7 2	Ditto ditto.
Khan Mahomed Dhurrumsee ...	55,247 9 1	33,008 1 8	11,149 7 7	11,089 15 10	1,312 7 6	9,777 8 4	Ditto ditto.
Kissoory Mohen Chunder ...	3,300 0 0	2,025 2 4	269 4 2	1,005 9 6	590 11 9	414 13 9	Ditto ditto.
Kissoory Mohen Ruckhitt ...	9,405 15 3	5,247 4 1	3,599 8 3	559 2 11	481 9 2	77 9 9	Ditto ditto.
Kally Dose Doss and others ...	73,719 13 5	20,461 12 8	46,590 9 6	6,667 7 3	3,967 4 0	2,700 3 3	Ditto ditto.
Kullianjee Soonderjee (Soonderjee, Walljee and Co.)	12,444 6 0	2,351 3 3	6,936 8 0	3,156 10 9	3,093 13 10	62 12 11	Ditto ditto.

Chatterjea	..	1,971	8	9	.....			801	0	5	1,170	8	4	... ..			1,170	8	4	Ditto	ditto.
	..	6,800	9	3	3,840	8	1	2,136	11	5	823	5	9	744	15	2	78	6	7	Ditto	ditto.
C.	..	2,469	15	10	168	12	6	436	2	5	1,865	0	11	1,600	0	0	265	0	11	Ditto	ditto.
Chand Goleecha (Okhoyram Chand).		2,43,257	9	11	1,29,999	2	6	94,123	2	4	19,135	5	1	4,050	2	1	5,085	3	0	Outstanding: in course of recovery.	
arn Roy	..	510	0	0	.....			4	0	0	506	0	0	.....			506	0	0	Nothing further recoverable.	
Moben Dass	..	1,133	8	5	.....			456	2	0	677	6	5	.....			677	6	5	Ditto	ditto.
sono Vuttacharjee	..	2,327	11	0	.....			796	7	10	1,531	3	2	.....			1,531	3	2	Ditto	ditto.
and and Ameechand	..	1,371	2	3	.....			110	1	0	1,261	1	3	.....			1,261	1	3	Outstanding: in course of recovery.	
iff Bham	..	796	9	3	... ..			257	8	0	539	1	3	... ..			539	1	3	Ditto	ditto.
ahabzadah Mahomed	..	3,248	1	0	2,256	0	0	295	10	0	696	7	0	667	14	4	28	8	8	Ditto	ditto.
oyal Tunsook Roy	..	1,406	15	6	.....			298	6	0	1,108	9	6	.....			1,108	9	6	Ditto	ditto.
thewson and Co.	..	8,68,485	13	8	2,81,882	4	9	84,883	12	0	1,719	12	11	1,285	11	0	434	1	11	Nothing further recoverable.	
Saunders and Co.	..	80,893	0	4	42,900	8	0	22,836	4	7	15,156	3	9	12,631	12	0	2,524	7	9	Ditto	ditto.
F. D. A.	..	1,170	8	0	.....			.....			1,170	8	0	.....			1,170	8	0	Ditto	ditto.
and Co.	..	33,718	2	8	1,620	6	4	23,592	8	7	8,505	3	9	8,170	3	9	335	0	0	Ditto	ditto.
mill and Co.	..	6,527	12	4	595	0	8	2,343	0	4	3,589	11	4	3,244	15	2	344	12	2	Ditto	ditto.
aux, Labadie and Co.	..	7,483	10	3	1,098	13	8	5,463	14	7	920	14	0	538	7	3	382	6	9	Ditto	ditto.
E. D. (2nd)	..	3,982	6	2	12	0	2	3,079	2	10	891	3	2	795	10	5	95	8	9	Ditto	ditto.
n, J. V.	..	1,008	10	5	234	3	6	243	15	10	530	7	1	480	12	4	49	10	9	Ditto	ditto.
. H. (2nd)	..	1,654	8	7	180	6	6	658	12	11	815	5	2	52	8	2	762	13	0	Ditto	ditto.
D. B.	..	1,430	3	0				557	4	0	872	15	0	.....			872	15	0	Ditto	ditto.
arain Khettry	..	1,726	9	9	429	2	0	617	3	6	680	4	3	411	14	8	268	5	7	Ditto	ditto.
J. P.	..	1,448	12	0	.....			532	0	0	916	12	0	.....			916	12	0	Ditto	ditto.
h Shaw	..	8,323	8	6	5,069	1	8	2,424	9	5	829	13	5	759	9	4	70	4	1	Ditto	ditto.
E. D. and Co.	..	2,444	10	6	286	6	6	487	6	0	1,670	14	0	1,557	12	4	113	1	8	Ditto	ditto
S. (2nd)	..	885	8	11	143	0	0	69	0	4	673	8	7	200	0	0	473	8	7	Ditto	ditto.
y Dhunjeebhoy	..	4,781	8	5	2,644	8	6	975	5	4	1,161	10	7	1,144	6	3	17	4	4	Ditto	ditto.
A., and another (Lyall, Renni .)		3,60,219	2	3	06,025	11	3	50,755	7	1	3,437	15	11	2,761	12	1	676	3	10	Ditto	ditto.
L. K. (Kerr, Leitch & Co.)	..	1,853	3	0	588	2	9	520	14	6	744	1	9	51	13	3	692	4	6	Ditto	ditto.
C. F. (separate estate)	..	2,822	12	2	.....			25	6	6	2,797	5	8	.....			2,797	5	8	Ditto	ditto.
Thomas	..	1,010	1	6	.....			171	8	0	838	9	6	.....			838	9	6	Ditto	ditto.
C. F., and another (C. Lazs .)		6,744	9	5	.....			5,735	4	3	1,009	5	2	.....			1,009	5	2	Ditto	ditto.
F. W. (Marquardt, Lehzen & Co		16,172	15	7	12,483	10	5	1,968	14	0	1,720	7	2	312	10	3	1,407	12	11	Ditto	ditto.
sh and Co.		2,28,494	11	9	24,788	3	2	77,432	6	3	26,274	2	4	24,413	1	2	1,861	1	2	Ditto	ditto.
Fagan and Co.		17,631	7	7	6,841	8	1	10,248	13	1	541	2	5	8	6	7	532	11	10	Ditto	ditto.
r, Hunter and Co.		10,719	11	10	.....			9,875	11	3	844	0	7	.....			844	0	7	Ditto	ditto.
nd Co., D. C.		1,17,362	7	8	58,372	14	3	41,916	2	8	17,073	6	9	17,064	9	3	8	13	6	Ditto	ditto.
Co., William		9,560	5	4	3,938	0	5	2,759	2	7	2,863	2	4	2,863	2	4	.....			Ditto	ditto.
L. A.		885	4	9	18	8	8	342	2	8	524	9	5	430	15	10	93	9	7	Ditto	ditto.
William		1,868	8	8	.....			359	4	6	1,509	4	2	1,339	13	7	169	6	7	Ditto	ditto.
Pillans and Co.		96,154	3	7	19,123	12	4	71,924	2	4	5,106	4	11	5,078	15	2	27	5	9	Ditto	ditto.
ames (Senior).		662	6	9	.....			146	0	0	516	6	9				516	6	9	Ditto	ditto.
, John		821	0	3	20	12	0	189	4	0	611	0	3				611	0	3	Ditto	ditto.

ESTATES.	Whole amount of receipts.	WHOLE DISBURSEMENTS.		Balance.	Portion of balance applicable to dividends now payable.	Net balance.	Probable outturn of the dependencies.
		Dividends paid.	Other payments.				
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Murdock, Mackenzie and Co. ...	5,598 2 8	17 10 1	5,037 6 4	543 2 3	458 0 8	85 1 7	Nothing further recoverable.
Meyers, F. ...	1,263 13 6	.....	139 0 0	1,124 13 6	.....	1,124 13 6	Ditto ditto.
Macdonald, Daniel ...	1,691 14 2	247 8 0	589 13 2	854 9 0	609 11 3	244 13 9	Ditto ditto.
Martin, William ...	2,106 11 8	75 0 0	552 6 2	1,479 5 6	1,425 0 0	54 5 6	Ditto ditto.
Michael, J. C. (2nd) ...	7,760 12 8	5,358 3 5	1,869 3 4	533 5 11	.....	533 5 11	Ditto ditto.
Meddlecoat, J. H. P. ...	1,011 14 6	111 7 11	98 14 5	801 8 2	579 6 5	222 1 9	Ditto ditto.
Meyers, A. J. ...	8,876 3 6	4,248 9 10	2,804 7 10	1,823 1 10	1,580 10 0	242 7 10	Ditto ditto.
Meer Dawood Alley ...	3,044 0 2	1,459 3 0	229 14 5	1,354 14 9	1,191 12 2	163 2 7	Ditto ditto.
Munnoololl ...	1,410 4 10	.....	647 10 7	762 10 3	.....	762 10 3	Schedule not filed as yet.
Muddonjee Dhurrumsee ...	880 0 2	.....	68 9 6	811 6 8	472 10 8	338 12 0	Nothing further recoverable.
Morgan, C. ...	1,978 6 3	685 1 2	200 1 11	1,093 3 2	813 3 5	279 15 9	Ditto ditto.
Michael, J. C. (3rd) ...	10,086 11 8	6,872 12 2	1,573 8 10	1,640 6 8	1,633 5 5	7 1 3	Ditto ditto.
Murray, James (Black and Murray) ...	14,154 7 2	8,895 4 11	2,544 14 4	2,714 3 11	2,454 4 2	259 15 9	Ditto ditto.
Mugneeram ...	4,227 6 6	1,405 6 1	2,040 11 0	781 5 5	695 14 0	85 7 5	Ditto ditto.
Muddoosoodun Dutt ...	8,150 7 5	5,995 15 11	1,224 7 5	930 0 1	927 9 3	2 6 10	Ditto ditto.
Muddoosoodun Pyne ...	1,762 10 1	.....	203 11 0	1,558 15 1	.....	1,558 15 1	Schedule not filed as yet.
Marshall Brothers ...	12,811 4 11	6,740 0 10	4,650 2 0	1,421 2 1	1,304 0 3	117 1 10	Nothing further recoverable.
Mangos, C. D. ...	13,668 1 10	4,611 8 9	8,055 1 1	1,001 8 0	889 14 11	111 9 1	Ditto ditto.
Martin, J. C. ...	2,327 4 4	834 12 5	159 13 4	1,332 10 7	1,244 11 1	87 15 6	Ditto ditto.
Mahamed Baker Aga ...	2,098 2 9	1,032 11 3	432 2 10	633 4 8	534 8 1	98 12 7	Ditto ditto.
Megraj Boorah (Megraj Chogmull) ...	11,441 10 7	7,124 8 10	2,586 0 0	1,981 1 9	1,894 5 7	86 12 2	Ditto ditto.
McArthur, James ...	1,119 15 6	.....	62 14 8	1,057 0 10	965 14 3	91 2 7	Ditto ditto.
McKay, W. R. ...	864 6 6	122 7 4	23 14 6	718 0 8	146 1 6	571 15 2	Ditto ditto.
Mohabharut Roy ...	10,914 8 0	.....	3,870 10 0	7,043 14 0	.....	7,043 14 0	Schedule not filed as yet.
Moorally Dhur Bunshee Lall ...	6,918 7 5	323 8 0	925 0 5	5,669 15 0	182 1 0	5,487 14 0	Outstanding: in course of recovery.
Muddon Mohun Dey and another ...	40,990 4 2	33,834 13 5	5,687 12 8	1,467 10 1	1,384 0 10	83 9 3	Nothing further recoverable.
Madhub Lall Shaw Chowdoory ...	21,752 0 6	.....	255 1 5	21,496 15 1	.....	21,496 15 1	Outstanding: in course of recovery.
Nursing Chunder Bose ...	1,030 0 0	.....	202 11 0	827 5 0	.....	827 5 0	Nothing further recoverable.
Nyss, John ...	750 2 11	.....	171 4 0	578 14 11	.....	578 14 11	Ditto ditto.
Nemy Churn Bysack ...	1,210 13 0	.....	428 5 4	782 7 8	696 8 1	85 15 7	Ditto ditto.
Norman Brothers ...	19,569 14 7	9,267 15 3	5,906 1 4	4,395 14 0	4,395 14 0	.....	Ditto ditto.
Nobin Kisto Ghose ...	2,450 0 0	617 3 1	536 10 3	1,296 2 8	1,063 3 1	232 15 7	Ditto ditto.
Nundolall Shaw and Anuntolall Shaw ...	1,950 0 0	.....	249 6 6	1,700 9 6	.....	1,700 9 6	Ditto ditto.
Narain Sing and Co. ...	32,007 6 11	18,805 8 7	9,718 1 2	3,483 13 2	3,424 11 7	59 1 7	Ditto ditto.
Nicol, J. Dyce ...	23,409 1 11	9,410 3 10	5,556 0 4	8,442 13 9	1,666 11 8	6,776 2 1	Ditto ditto.

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Estates.	Whole amount of receipts.	Whole Disbursements.		Balance.	Portion of balance applicable to dividends now payable.	Net balance.	Probable outturn of the dependencies.
		Dividends paid.	Other payments.				
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Ramdhone Mitter ...	838 5 4	52 4 5	217 8 2	568 8 9	453 1 6	115 7 3	Nothing further recoverable.
Rustomjee, Cowasjee and Co ...	11,032 15 0	3,373 5 8	6,015 1 6	1,644 7 10	1,285 10 3	358 13 7	Ditto ditto.
Ramsabuck Misser and others ...	1,23,206 9 4	75,777 8 5	29,912 4 9	17,516 12 2	17,143 12 5	372 15 9	Ditto ditto.
Robinson, S. H. ...	1,129 10 9	.....	132 0 0	997 10 9	... ..	997 10 9	Ditto ditto.
Ram Narian Sreemaney ..	9.319 8 0	4,158 0 11	2,041 7 1	3,120 0 0	3,066 10 8	53 5 4	Ditto ditto.
Robinson, J. J. (Wallace and Co.) ...	3.052 8 8	270 0 0	2,027 4 6	755 4 2	321 14 9	433 5 5	Ditto ditto.
Ram Nath Janookeypersaud ...	5,296 4 9	.....	2,792 3 0	2,504 1 9	.....	2,504 1 9	Schedule not filed as yet.
Rughoo Nath Roy (Toongumram Gouri Dutt).	6,189 7 0	3,760 12 5	1,470 7 0	958 3 7	719 5 4	238 14 3	Nothing further recoverable.
Russicklall Paul ...	702 5 3	.....	23 11 6	678 9 9	.....	678 9 9	Ditto ditto.
Ritz, Alfred ...	1,139 0 0	.....	208 7 6	930 8 6	690 13 5	239 11 1	Ditto ditto.
Ram Gopaul Paul ...	8,141 12 6	4,314 7 11	2,408 6 8	1,418 13 11	1,220 9 5	198 4 6	Ditto ditto.
Ram Dass Paul ...	1,545 8 3	457 8 0	475 10 9	612 5 6	469 13 6	142 8 0	Ditto ditto.
Rakhal Chunder Bannerjea, junior ...	5,534 7 3	138 2 6	2,866 9 9	2.529 11 0	62 13 6	2.466 13 6	Ditto ditto.
Rushton, H. P., and others (Rushton Brothers).	81,120 2 3	47,489 3 8	26,799 11 0	6,831 3 7	5,460 13 3	1,370 6 4	Ditto ditto
Rustomjee Cowasjee ...	3,796 13 7	1.637 9 1	425 11 10	1,733 8 8	1,537 12 2	195 12 6	Ditto ditto.
Rushton, Edward ...	2.784 3 9	1,418 6 4	690 3 10	675 9 7	657 11 6	17 14 1	Ditto ditto.
Ramsarun Lall ...	57,280 1 1	29,172 2 3	21.011 11 2	7,096 3 8	6,939 2 11	157 0 9	Ditto ditto.
Ram Kissen Kotary ...	7,527 14 3	4,452 14 4	1,840 0 6	1,234 15 5	1,232 9 6	2 5 11	Ditto ditto.
Ramsamull Pannalall ...	1,933 2 9	.....	656 11 9	1,276 7 0	... ..	1,276 7 0	Ditto ditto.
Robertson, C. A. (1st) ...	1,500 0 0	477 2 10	81 12 9	941 0 5	726 4 9	214 11 8	Ditto ditto.
Ramdhone Mullick ...	46.922 13 6	455 4 3	45.446 12 2	1,020 13 1	.....	1.020 13 1	Ditto ditto.
Rutledge, W. ...	4,122 12 0	2,736 3 9	806 12 7	579 11 8	206 0 8	373 11 0	Ditto ditto.
Rajendro Coondoo and another ...	860 0 0	.....	182 1 0	677 15 0	... ..	677 15 0	Schedule not filed as yet.
Reinhold, H. (Reinhold & Co.) ...	13,753 7 9	9,298 6 9	2,663 9 1	1,791 7 11	1,651 4 1	140 3 10	Nothing further recoverable.
Reinhold, H. C., and another (Reinhold Brothers).	5,903 0 1	135 7 9	1,717 6 5	4,050 1 11	233 14 0	3,816 3 11	Ditto ditto.
Reinhold, H. C., separate account ...	790 0 0	.....	53 1 8	736 14 4	725 14 5	10 15 11	Ditto ditto.
Retz Reinhold and Feilman ...	13.333 5 0	10,502 0 10	895 2 3	1,936 1 11	216 13 6	1,719 4 5	Ditto ditto.
Rashbehary Roy and Jullodhur Roy ...	22,374 1 7	.....	7,089 0 4	15,285 1 3	.. ...	15,285 1 3	Outstanding: in course of recovery.
Radha Kissen Doss *alias* Lal Behary ...	2,842 5 3	.....	958 5 9	1,883 15 6	.. ...	1,883 15 6	Ditto ditto.
Ramkissen ...	5,12,169 4 5	.....	1,11,208 15 2	4,00.960 5 3	... ..	4,00,960 5 3	Ditto ditto.
Rambox Rattee (Chooneelall Janokey Dass)	5,329 3 8	.. ...	596 10 4	4,732 9 4	.....	4,732 9 4	Ditto ditto.
Saunders, May, Fordyce and Co. ...	4,03.262 11 3	3,21,713 7 1	68,906 4 4	12,642 15 10	11.992 9 4	650 6 6	Nothing further recoverable.
Stewart and Co, W. C. ...	5,793 6 0	1,967 12 3	770 3 11	3,055 5 10	1,724 14 7	1,330 7 3	Ditto ditto.

Senaes, W. D. M.	..		11	7	.....			912	2	6	1,602	9	1	1,533	5	10	69	3	3	Ditto	ditto.
Smith, W. S.	..		13	5	2,635	15	6	471	0	8	513	13	3	471	11	1	42	2	2	Ditto	ditto.
Stocquelor, J. H.	...		0	0	210	6	5	5,537	0	7	1,390	9	0	1,122	12	7	267	12	5	Ditto	ditto.
Schlatter, Michael	...		14	10	16,357	13	1	2,433	0	9	1,504	1	0	1,006	8	1	497	8	11	Ditto	ditto.
Smoult, W. H.	..		10	3	97	13	5	328	9	3	1,550	3	7	1,190	7	6	359	12	1	Ditto	ditto.
Sheppard, G. A.	...		2	10	4,179	1	11	662	0	7	757	0	4	652	6	0	104	10	4	Ditto	ditto.
Sarkies and Co., P. J.	...		10	9	6,473	9	2	45,380	2	2	756	15	5	602	12	10	154	2	7	Ditto	ditto.
Scott, C. C. J.	..		13	9	4,659	10	11	2,002	0	10	1,062	2	0	631	9	11	430	8	1	Ditto	ditto.
Smith, Huffnagle and Co.	...		14	5	13,828	7	4	10,798	4	10	2,006	2	3	.....			2,006	2	3	Ditto	ditto.
Stubbs, W. V. G.	...		6	5	81	3	10	1,649	12	7	1,760	6	0	262	2	3	1,498	3	9	Ditto	ditto.
Snook, J. V.	...		10	0	.....			158	0	0	617	10	0	.....			617	10	0	Ditto	ditto.
Sreegopaul Misser	...		0	0	55	14	4	678	6	8	1,216	11	0	1,093	0	11	123	10	1	Ditto	ditto.
Solomon, Maladona	...	6	6	10	43,579	4	11	17,498	10	0	2,963	7	11	2,682	12	0	280	11	11	Ditto	ditto.
Stewart, W. M.	...	2	4	9	12,513	15	1	6,325	15	7	6,149	6	1	5,610	9	8	538	12	5	Ditto	ditto.
Sarkies, P. J.	...	1	7	7	6,168	3	7	3,097	5	4	961	14	8	789	10	3	172	4	5	Ditto	ditto.
Sreenauth Mullick	...	1	7	7	13,851	5	6	3,389	12	10	541	5	3	431	12	6	109	8	9	Ditto	ditto.
Sewnundun Paray	...	3	9	9	18,836	10	11	7,473	4	4	5,973	10	6	5,242	11	7	730	14	11	Ditto	ditto.
Smith, A. M.	...		10	7	244	1	6	801	15	7	1,754	9	6	1,371	10	8	382	14	10	Ditto	ditto.
Shib Chunder Seal	...	1	3	9	3,152	9	3	9,450	8	8	952	1	10	730	13	6	221	4	4	Ditto	ditto.
Solomon and Co., D. H.	...	1	12	9	9,499	1	8	4,711	4	9	1,843	6	4	1,655	2	10	188	3	6	Ditto	ditto.
Schiller, F., and others (Borradaile, Schiller and Co.)		,5	1	8	83,155	7	3	31,168	12	4	38,352	14	1	31,115	12	9	7,237	1	4	Ditto	ditto.
Straw, F. T.	...	3	15	11	19,162	13	4	15,635	4	5	1,472	14	2	961	15	1	510	15	1	Ditto	ditto.
Samul Doss Soonder Doss	...		6	9	929	1	3	683	4	6	525	1	0	400	11	1	124	5	11	Ditto	ditto.
Smith and Co., Thomas	..	6	0	10	8,918	11	0	56,288	9	2	1,732	12	8	1,078	12	0	654	0	8	Ditto	ditto.
Shamachurn Bhur	...		2	0	.....			187	0	7	816	1	5	.....			816	1	5	Ditto	ditto.
Schiller, F.	...	5	10	7	1,200	1	0	1,489	4	1	2,793	5	6	2,576	13	2	216	8	4	Ditto	ditto.
Shamlall Khettry (Dewkey Nundon Lalljee Mull).		1	12	6	12,193	11	10	3,245	3	10	1,513	12	10	1,456	0	10	57	12	0	Ditto	ditto.
Sherajoodeen Shaik	...		12	0	.....			233	3	5	1,227	8	7	.. ..			1,227	8	7	Schedule not filed as yet.	
Seetaram Rohutgee	...		8	3	.. ...			158	6	6	787	1	9	...			787	1	9	Nothing further recoverable	
Seetaram Tejpal (Khetsee Dass Golaub Chand).			6	6	88	12	0	1,274	4	7	3,256	5	11	2,987	6	0	268	15	11	Ditto	ditto.
Smallwood, A. (Lloyd and Co.)	...	6,280	11	3	1,402	0	9	2,787	9	2	2,091	1	4	.....			2,091	1	4	Ditto	ditto.
Soorjeemull Mugneeram and Hunnomontoram (Soorjeemull Mugneeram).		3,728	8	6	805	0	0	1,486	0	0	1,437	8	6	945	0	4	492	8	2	Ditto	ditto.
Soutendro Mohun Tagore	...	810	5	9	39	6	0	52	8	1	718	7	8		4	5	10	3	3	Ditto	ditto.
Sander, C. W. P.	...	1,062	8	0	.....			6	7	0	1,056	1	0				1,056	1	0	Outstanding: in course of r	
Stephen, A. J.	...	1,201	8	0	.....			42	1	2	1,159	6	10		5	8	620	7	2	Ditto	ditto.
Shebdass Moohoory (Ramdhone Moohoory and Shebdass Moohoory).		37,536	2	3	.....			23,901	12	5	13,634	5	10				3,634	5	10	Ditto	ditto.
Shama Churn Khaw	..	2,191	8	0	.....			1,417	2	9	774	5	3				774	5	3	Ditto	ditto.
Tullon and Co. (1st).	...	,21,128	2	10	68,615	10	0	50,626	7	9	1,886	1	1		0	6	746	6	7	Nothing further recoverable.	
Tullon and Co. (2nd)		19,223	10	2	8,961	4	4	9,684	15	7	577	6	3			3	166	5	0	Ditto	ditto.
Thom	and Co.	,55,276	15	3	3,98,103	6	2	50,239	15	2	6,933	9	11			0	5,619	8	11	Ditto	ditto.

Estates.	Whole amount of receipts.	Whole Disbursements.		Balance.	Portion of balance applicable to dividends now payable.	Net balance.	Probable outturn of the dependencies.
		Dividends paid.	Other payments.				
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Trower, Charles ...	2,177 2 0	240 0 0	72 0 0	1,865 9 0	811 7 5	1,054 1 7	Nothing further recoverable.
Twentyman and Co. ...	683 6 7	.....	152 2 1	531 4 6	.....	531 4 6	Ditto ditto.
Thomas, John ...	740 0 0	.....	.....	740 0 0	.....	740 0 0	Ditto ditto.
Tarachand Kuramull Dowlutchand ...	22,970 1 11	6,210 6 9	14,187 12 0	2,571 15 2	2,199 13 3	372 1 11	Ditto ditto.
Teitkins, A. H. ...	5,671 12 10	3,819 12 0	1,248 0 5	604 0 5	.....	604 0 5	Ditto ditto.
Turton, Sir T. E. M. ...	2,49,996 3 10	1,48,439 14 7	1,00,447 2 8	1,109 2 7	661 12 9	447 5 10	Ditto ditto.
Troylucknauth Roy and another ...	26,576 11 0	18,507 10 9	7,142 7 5	926 5 10	835 4 8	91 4 2	Ditto ditto.
Thorndike, A., and another (Atkinson, Tilton and Co.)	48,433 7 2	17,760 4 5	25,132 6 6	5,540 12 3	3,468 1 6	2,072 10 9	Ditto ditto.
Tunsook Roy Premsook Roy ...	27,590 9 11	9,766 11 1	10,889 8 2	6,934 6 8	5,910 3 2	1,024 3 6	Ditto ditto.
Turnbull, R. A. ...	18,050 0 9	2,771 3 3	14,034 4 5	1,244 9 1	107 3 8	1,137 5 5	Ditto ditto.
Tacooranee Bibee and Chinesbas *alias* Sreeneebas (Bunseedhur Lutchmenarian).	4,136 5 0	.....	421 4 0	3,715 1 0	.....	3,715 1 0	Outstanding: in course of recovery.
Templeton, A. N. ...	650 0 0	.....	.....	650 0 0	.....	650 0 0	Ditto ditto.
Vandenberg, J. B. (2nd) ...	5,740 4 3	4,036 0 7	440 2 5	1,264 1 3	1,235 11 11	28 5 4	Nothing further recoverable.
Willis, F. F. ...	7,102 7 11	892 13 4	2,906 1 7	3,303 9 0	2,932 2 8	371 6 4	Ditto ditto.
Willis, Joseph ...	1,20,346 2 7	88,227 7 6	29,952 12 8	2,165 14 5	1,839 2 11	326 11 6	Ditto ditto.
Wood, Olliffe and Co. ...	3,276 6 10	.....	1,427 4 6	1,849 2 4	.....	1,849 2 4	Ditto ditto.
Waring, E. S. S. ...	3,066 8 8	1,780 7 11	529 5 2	756 11 7	650 13 11	105 13 8	Ditto ditto.
Williams, Stephen ...	20,504 1 5	17,451 12 3	2,207 14 7	844 6 7	476 11 4	367 11 3	Ditto ditto.
Watson and Co., Gibbon and Co. ...	1,06,519 3 0	87,390 15 9	15,992 0 3	3,136 3 0	2,703 9 8	432 9 4	Ditto ditto.
Wood, H. W. J. ...	2,539 13 0	712 3 7	885 5 3	942 4 2	785 11 9	156 8 5	Ditto ditto.
Webb, John ...	4,457 8 3	2,391 0 8	1,103 4 5	963 3 2	890 14 9	72 4 5	Ditto ditto.
Wood, David ...	1,414 3 0	56 7 3	753 11 11	603 15 10	548 11 6	55 4 4	Ditto ditto.
Wilcox, H. C. ...	710 0 0	62 3 9	55 1 0	592 11 3	535 3 8	57 7 7	Ditto ditto.
Wallis, C. B. ...	8,520 11 5	6,592 2 1	1,403 4 3	525 5 1	120 11 5	404 9 8	Ditto ditto.
Woodin, W. (G. F. Hodgkinson and Co.)	25,413 4 5	1,022 8 2	22,444 3 9	1,946 8 6	1,549 5 6	397 3 0	Ditto ditto.
Woomes Chunder Banerjea (G. DeLeman and Co.)	23,991 14 1	19,455 11 5	3,065 4 3	1,470 14 5	1,451 9 9	19 4 8	Ditto ditto.
Wyldie, J. J. ...	1,200 0 0	100 0 0	21 7 1	1,078 8 11	26 6 4	1,052 2 7	Ditto ditto.
Wiseham, William ...	967 3 6	.....	32 0 0	935 3 6	.....	935 3 6	Schedule not filed as yet.
Zeanine, A. ...	4,860 2 9	261 11 10	2,307 12 6	1,690 10 5	.....	1,690 10 5	Nothing further recoverable.

In addition to the above, there are 1,464 estates with balances under Rs. 500 each, aggregating Rs. 1,70,199-13-3, the particulars of which may be learnt at this Office. The Official Assignee has received for remuneration for the quarter ending 30th September 1889 Rs. 4,798-3-6.

Notification.

TO be peremptorily sold pursuant to a decree and order of the Calcutta High Court, Original Jurisdiction, made in suit No. 257 of 1888 (wherein Punno Bibee is plaintiff and Denonauth Ghose is defendant), and dated, respectively, the 23rd of August 1888 and the 12th of September 1889, by the Registrar of the said Court, in his sale-room in the Court-house on Saturday, the 29th of March next, at the hour of 12 o'clock at noon, an undivided one equal third part or share of the defendant in the following properties, viz.—

Lot. No. 1.—Nos. 32 and 33, formerly Nos. 74 and 75, College Street in Calcutta, being an upper-roomed brick-built house and the land appertaining thereto, the area of which is about two cottahs, and which property is bounded on the north by Arpooly Lane; on the south by the dwelling-house of Kanoy Loll Seal and brothers; on the east by the tenanted house of Kally Churn Ghose; and on the west by College Street.

Lot. No. 2.—No. 17-1, Jhamapooker in Calcutta, being an upper-roomed brick-built dwelling-house, and the land appertaining thereunto, on part whereof the same is erected, the area of which is about 9½ cottahs, and which property is bounded on the north by the dwelling-house of Madhub Chunder Ghose and his brothers; on the south by a Government drain; on the east partly by the dwelling-house of Khetter Mohun Bose and partly by a Government drain; and on the west partly by a Government drain and partly by the dwelling-house of late Issur Chunder Bonnerjee and partly by the house of Madhub Chunder Ghose and his brothers.

The abstract of title and conditions of sale may be seen at the Registrar's Office in the Court-house, or at the office of Baboo Gonesh Chunder Chunder, the plaintiff's Attorney, at No. 5, Hastings Street in Calcutta, and will be produced at the sale.

R. BELCHAMBERS, Registrar.

Gonesh Chunder Chunder, Plaintiff's Attorney.

High Court, Calcutta, Original Side, the 11th February 1890.

(3513—1)

Notification.

TO be peremptorily sold by the Registrar of the Calcutta High Court, Original Civil Jurisdiction, in his sale-room on the middle floor of the Court-house on Saturday, the 22nd of February next, at the hour of 12 o'clock at noon, pursuant to a decree and orders of the said Court, made in suit No. 113 of 1885 (wherein Maltee Bibee, widow and administratrix of the late Bhogoban Dass, Augurwallah, is the plaintiff, and Russick Laul Chunder and others are the defendants), and dated, respectively, the 10th January 1887 and the 27th of July 1889, the undivided three annas and four gundas share of the defendants in the following property:—

Lot No. 1.—No. 50, Moirahatta Street, in Calcutta, being a brick-built house and premise in block No. 18, holding No. 187, North Division, and a piece of land thereunto belonging, and on part whereof the same is built, the area of which is by estimation 11 chittacks and 1 square foot, be the same, a little more or less, paying the annual jumma of 13 annas eight gundas and three cowries, and butted and bounded as follows:—On the north by the tenanted house of Aukhoy Churn Mullick; on the south by the tenanted house of the late Rajkristo Khan and others; on the east by the public road called Moirahatta Street; and on the west by the tenanted house of Sreemutty Rani Dassee.

The conditions of sale and abstract of title may be seen at the Office of Messrs. Sowton and Sen, Attorneys for the plaintiff, at No. 2, Church Lane, in Calcutta, on any day before the sale, and will be produced at the sale.

R. BELCHAMBERS, Registrar.

Sowton and Sen, Plaintiff's Attorneys.

Calcutta, High Court, Original Jurisdiction, the 12th February 1890.

(3547—1)

In the Court of the Second Sub-Judge, 24-Pergunnahs.

EXECUTION CASE No. 190 OF 1889.

Jagat Chander Roy Chaudhury and others, decree-holders, *versus* Nilratan Mukerjee of Ula, debtor.

TO be peremptorily sold by the Nazir of the District Judge, 24-Pergunnahs, at 12 o'clock, on Monday, the 10th March 1890, the following mortgaged properties of the debtor above named for the realization of Rs. 6,562-9 due to the decree-holders:—

Lot No. 1.—The one-fourth undivided share of the debtor Nilratan Mukerjee, in taraf Birnagur *alias* Ula taluq Rupmanjari Dasy, forming towji No. 379 in the Collectorate of Nuddea, comprised in pergunnah Mamjoany, thana and sub-registration Ranaghat.

Lot No. 2.—In the said district and the said registration, and within the said pergunnah Mamjoany, the sixteen annas share in taluq Tripura Sundary Dasy, taraf Ula *alias* Birnagar, forming taluq No. 3087 in the Collectorate of Nuddea.

Lot No. 3.—The sixteen annas share of the debtor in 9 bighas of land, and the buildings, walls, gardens, &c., on it, in Ula *alias* Birnagar, in pergunnah Mamjoany, thana and sub-registration Ranaghat, district Nuddea, boundaries west and north of road, east of lakhiraj land belonging to Dasarathi Rudra and others, south of the land purchased by debtors in taluq No. 3063

N.B.—These three lots form the property No. 2 of the decree.

Lot No. 4.—(The property No. 3 of the decree.)

The 17 gundas 3 kans 1 kag undivided share of the debtor in 27 mouzahs, taraf Bhabanipur, Siddhi and others, formerly comprising taluq No. 49 in the Collectorate of Nuddea, at present No. 5073 in the Collectorate of Jessore, thana and sub-registration being Bongong.

RADHA KRISHNA SEN, Sub-Judge.

(3556—1)

In the Court of the Subordinate Judge of Beerbhoom.

EXECUTION CASE No. 1 OF 1890.

Gopal Chandra Chakrabarti and another, decree-holders *versus* Sheikh Iashin, minor, represented by his next friend, maternal uncle Sheikh Abdool Goffar, and another, judgment-debtors.

THE undermentioned property of the above judgment-debtors will be sold by public auction on the 1st day of April 1890 at 12 o'clock noon by the Nazir of the District Judge's Court, Beerbhoom, in the sale-room of the Court-house:—

Schedule of property to be sold.

1. The right, title, and interest of the judgment-debtors in nine gundas three cowris share of lot Baotara within the police-station and sub-registry of Doobrajpur, pergunnah Haripur, bearing towji No. 229 of the Beerbhoom Collectorate; the Government revenue payable is Rs. 1,056-12 in the sixteen annas share.

2. One anna one gunda three cowris share of the above mehal, including the khas khamar lands, tanks, and jungle.

3. Eight gundas three cowris share of the above mehal, including khas khamar lands, tanks, and jungle.

(3552—1) KEDAR NATH CHATTERJI, Sub-Judge.

High Court Notice.

ESTATE RAJAH RAJ KISSEN.

Maharajah Sibkristo Bahadoor, *vs.* Kristo Chunder Ghose.

NOTICE is hereby given that on Wednesday, the 12th March next, at the hour of 1 o'clock in the afternoon, the Receiver of the High Court will put up for auction, at his office on the third floor of the Court-house, a lease for six years from the 1st Bysack 1297, corresponding with the 13th April 1890, of the undermentioned property, on the terms and conditions of a draft lease which may be inspected at the said office.

In Zillah Tipperah, Pergunnah Gungamundle, recorded in the Register of the Collector as Towji No. 545, including the Churs appertaining thereto, viz., Nobbo Chur No. 1290, Chur Bahur *alias* Teotoor Chur No. 1508, Chur Surjo and Chur Sunjoora No. 1964, Chur Assad and Doobur Chur No. 21.

In Zillah Dacca, Chur Gongachia No. 10503, Chur Jamalpur No. 10505.

For conditions of auction and further particulars apply to the Receiver of the High Court.

J. C. MACGREGOR, Receiver High Court.

High Court Receiver's office, the 18th February 1890.

(3502—4)

Lost.

THE Government Promissory Note No. 238858 of 4 per cent. of 1865, for Rs. 500, originally standing in the name of Debnath Sreemany and last endorsed to Russick Lall Dutt the proprietor, by whom it was never endorsed to any other person; and also the Government Promissory Note No. 188252 of 4 per cent. of 1865, for Rs. 500, originally standing in the name of Khcoromoney Dassee, the proprietress, by whom it was never endorsed to any other person. Payment of the above notes and the interests thereupon have been stopped at the Public Debt Office, Bank of Bengal, and applications are about to be made for the issue of duplicates in favour of the proprietor and the proprietress.

RUSSICK LAUL DUTT, Bally, District Howrah.
(3550—3)

Stolen.

THE Government Promissory Note No. 220972 of the 4 per cent of 1865 for Rs. 500, originally standing in the name of Modhu Sudhir Kowar, and last endorsed to Kedar Nath Majumdar, the proprietor, by whom it was never endorsed to any other person. Payment of the above note and the interest thereupon have been stopped at the Public Debt Office, Bank of Bengal, and application is to be made for accrued interest and for issue of duplicates in favour of the proprietor after two years from date of last advertisement.

KEDAR NATH MAJUMDAR, Cooch Behar.
(3497—3)

Notice.

WANTED three Peshkars or Inspectors, on salaries of Rs. 30 per mensem, for settlement work in the Sonthal Pergunnahs. None need apply who have not a knowledge of plano-table, of compass-surveying and experience in settlement work. Applications with copies of certificates to be sent to the undersigned at once.

J. A. CRAVEN, Settlement Officer.
Damp Camp Deoghur, the 10th February 1890.

Notice.

WANTED a Record-keeper for the Maldah Collectorate on a salary of Rs. 40 rising to Rs. 60 by biennial increments of Rs. 2.

No one need apply who has not had previous experience in a similar post. The selected candidate is to furnish security to the extent of Rs. 500, either in Government Promissory Notes or in cash.

Applications will be received up to 25th February next.

POORNO CHUNDRA CHATTERJEE,
Deputy Collector in charge.

Wanted

A CASHIER for the Patna Municipality on salary of Rs. 50 per month. Applicants must possess a good knowledge of English and Hindee, and should be well versed in municipal rules and forms. A security of Rs. 3,000 in cash, or landed property, is also required. Applications with testimonials will be received by the undersigned up to 28th February 1890.

SYUD FUZL IMAM, Vice-Chairman.
Patna Municipality, the 14th February 1890.
(3557—2)

Notice.

IN continuation of notice, dated the 9th October 1889 published at page 1656, Part II of the *Calcutta Gazette* of 30th October 1889, regarding the Barque *Grosvenor*, it is further notified that the said vessel, with all her masts, sails, gear, and appurtenances which may be on board her on the 19th day of April 1890, will be sold by auction to the highest bidder on Saturday, the 19th of April 1890.

The sale will be held at the Port Office, Chittagong, and will commence at 3 P.M.

Terms—25 per cent. on fall of the hammer if desired by Receiver of Wrecks: the balance within a week of sale and before taking delivery. If the purchaser fails to pay the balance within seven days from date of sale, the vessel will be re-sold at his risk and expense. The vessel can be inspected at Chittagong by applictaion to the Receiver of Wrecks.

E. GOOD, Receiver of Wrecks.
(3498—4)

In the Court of Baboo Shamboo Chandra Nag, Subordinate Judge of Hooghly, Third Court.

RENT EXECUTION CASE No. 58 of 1889.

Nabo Kristo Mookerjee, decree-holder, *versus* Dyal Nath Bhattacharjee and others, judgment-debtors.

THE advertised property of the above judgment-debtors will be put up to sale in the highest bid on the 10th day of March 1890, at 12 o'clock noon, by the Nazir of the District Judge's Court, Hooghly, in the sale-room of the Court-house.

Schedule of Property to be sold.

Two annas thirteen gundas one cowree one krantee share of lot Bundeipore, bearing towji No. 77 of the Collectorate of Hooghly, situated in pergunnah Bundeipore, zillah Hooghly, sudder jumma of the whole 16 annas being Rs. 14,782-4-2, the upset value given by the decree-holder is Rs. (5,000), five thousand.

SHAMBOO CHANDRA NAG, Subordinate Judge.
Hooghly, the 7th February 1890. (3529—3)

Notification.

THE Zemindari DÂk Tax in the district of Sarun, for the year 1890-91, is fixed at the rate of 12 annas per cent per annum on the sudder jamma of estates paying a revenue amounting to Rs. 50 and over.

The amount due for each estate is payable in two instalments—the first being due on the 28th March 1890, and the second on the 28th September 1890.

B. G. GEIDT, For Magistrate.

Road Cess Notification.

IT is hereby notified for general information that, under section 46 of the Bengal Local Self-Government Act, No. III (B.C.) of 1885, the District Board of Purneah, by a resolution of their meeting of the 3rd February 1890, have determined to levy road cess for the year 1890-91 at the full rate, *i.e.*, 2 pice per rupee on the annual value of land, &c.

SURENDRA NATH MOZUMDAR, Vice-Chairman,
District Board.
Purneah District Board's Office, the 5th February 1890.

TARA PRASANNA GUHA, B.L., intends to apply for enrolment as a Vakeel of the High Court.
(3196—4)

The Bengal Coal Company, "Limited."

IN terms of clause 53 of the Articles of Association of the Company, the Adjourned Half-yearly Ordinary General Meeting of the Shareholders will be held at the Registered Office of the Company, No. 2, Garstins' Place, Calcutta, on Friday, the 28th February 1890, at 11-30 A. M., for confirmation by Shareholders of the Directors' report for the half-year ended 31st October 1889.

By order of the Board.
C. W. GRAY, Superintendent.
Calcutta, 19th February 1890. (3559—1)

Notice.

In the 1st Court of the Subordinate Judge of Midnapur.

EXECUTION CASE No. 9 OF 1890.

Bhubaneshwar Mitra, decree-holder, *vs.* Nimai Chand Dey and others, judgment-debtors.

THE undermentioned property of the judgment-debtors will be sold by public auction at the Court-house of the District Judge of Midnapur on Saturday, the 15th March 1890, at twelve o'clock, in execution of the decree passed by the Subordinate Judge of Midnapur for the realization of Rs. 3,232-8-0 obtained by a mortgage decree due from the debtors to the decree-holder:—

Schedule of property to be sold.

Lot I.—Mahal Anandapur with its eight annas share of mouza Kolagachhia, Government revenue payable is Rs. 159-15-0, and eight annas share of Shamsunderpur, Government revenue payable is Rs 518-2-0, total Government revenue payable is Rs. 678-1-0, within the police station of Shobong and sub-registry office of Raj Bullabh, pergunnah Moyna Chour, bearing towji No. 73 and A, Register No. 116.

DWARKANATH BHUTTACHARJEA, Subordinate Judge,
(3548—1) First Court

Excise.

NOTIFICATION.

1. The right of retail sale of the Liquors and Drugs specified below will be put up to auction at the Opium Sale-room, Board of Revenue, 2, Bankshall Street, on Tuesday, the 4th March 1890, and subsequent days, in the following order :—

Name of article.	Date of sale.
Ganja, Siddhi, Charas, Majum ...	Tuesday, the 4th March 1890.
Opium, Madak, Chandu	Wednesday, the 5th ditto.
Tari	Saturday, the 8th ditto.
Country Spirit, Rum and Imported Liquor by glass.	Monday, Tuesday, and Wednesday, the 10th, 11th and 12th March 1890.

2. A complete list of all the shops for which licenses will be offered and a copy of each form of license are open to general inspection at the Office of the Superintendent of Excise Revenue, 4, Bankshall Street, and the number of these shops is not under any circumstances to be increased during the term of three years ending the 31st March 1893, except under the Board's sanction in each case. The Superintendent of Excise Revenue, however, reserves to himself the right, in case of combination, or for other cause, to transfer (subject to there being no objection on police grounds), either before or after its settlement, any shop from the site specified in the list to some other site, provided that the new site, if it is more than 100 yards from the advertised one, does not bring the shop within a quarter of a mile of any other similar shop whose term of license is unexpired.

3 It is not at present intended to open any other shop during the term of the license; but the Superintendent of Excise Revenue does not absolutely bind himself in this respect. On special cause shown, and with the sanction of the Board of Revenue in each case, the number of shops may be increased: provided, however, that, whenever a new shop is opened, it will be optional to the holder of a similar license for the sale of Liquor or Drugs, if his shop is within a quarter of a mile of the new shop, to surrender his license without forfeiting his advance, when the Superintendent of Excise Revenue is to re-settle the shop by auction or otherwise.

4. The right of retail sale of the Liquors and Drugs is to be put up to auction at the sanctioned upset prices.

5. The right of retail sale of the Liquors and Drugs is to be put up to auction in separate lots of one or more shops, either in the order specified in the list, or in such other order as the officer conducting the sale may deem fit. When one lot has been sold, the next lot is not to be put up until the sum payable in advance on account of the lot already sold has been actually paid: provided, however, that, where the sum payable exceeds Rs. 25, a promissory note may be taken from any respectable and well-known purchaser in lieu of cash payment.

6. The purchasers of the right of retail sale of Country Spirit, Rum, and Imported Liquors are entitled to sell Imported Liquors by the glass only, the liquor to be drunk *on* the premises.

7. The auction is to be held subject to the following conditions :—

(*a*)—That the Superintendent of Excise Revenue does not bind himself to accept the highest or any bid.

(*b*)—That the settlement with each accepted purchaser will, in Calcutta and the Suburbs, be contingent on the production by him of the usual Police certificate or license, as the case may be, viz.—

For Excise licenses for— Doasta ... Rum ... Imported Liquors by glass Tari ... Ganja ... Siddhi ... Charas Majum	If to be held in Calcutta, a Police certificate in the form prescribed by section 36, Act IV (B.C.) of 1866, must be produced; and if to be held in the Suburbs, a Police certificate in the form prescribed by section 19, Act II (B.C.) of 1866, must be produced.
For Excise licenses for— Opium ... ... Madak ... ... Chandu	If to be held in Calcutta, a Police license in the from prescribed by section 39, Act IV (B.C.) of 1866, must be produced; and if to be held in the Suburbs, a Police license in the form prescribed by section 22 of Act II (B.C.) of 1866, must be produced.

(*c*)—That the person accepted as the purchaser is to state in writing, within seven days from the date of settlement, in what building he purposes to open his shop, and is at the same time to submit a plan showing clearly and distinctly what building or portion thereof he desires to be covered by the license, it being understood that the removal of shops to other premises than those named in the list attached to this notification will be contingent on the approval of both the Excise and Police authorities, and that any sum which has been paid as an advance of the license fee under the provisions of clause (*d*) of these conditions will be returned to any person to whom a license may be subsequently refused for Police reasons.

(*d*)—That the term of the license is to be for three years ending the 31st March 1893, and that, except in the case of Tari, the license fee for that period is to be paid in advance in the following instalments :—namely, the sum equivalent to the fee for two months, at the time of sale, and one month's fee on the date on which the currency of the license commences, and one month's fee on the 1st day of every succeeding month, until the whole of the fee due on the license shall have been paid. In the case of Tari only one month's fee

is to be paid in advance at the time of sale, and fifteen days' fee on the date on which the currency of the license commences, and the rest of the fee in half-monthly instalments, viz., on the 1st and 16th day of every month, until the whole of the fee due on the license shall have been paid. This condition is to be strictly enforced in future, and failure to comply with it is to be met by immediate cancelment of the license.

(*e*)—That the purchaser is not to be entitled to receive back any portion of his advance in the event of his shop being closed before the expiration of the term of the license on violation of any of the conditions of the license, or his being convicted of a non-bailable criminal offence, or of any offence against the Excise laws or rules; and in the case of the surrender of a license under Act VII (B.C.) of 1878, the licensee is to give fifteen days' previous notice in writing to the Superintendent of Excise Revenue, and pay a sum equal to the license fee for fifteen days, over and above the amounts already paid in advance; and in the case of the surrender of a license under Act I of 1878, the licensee is to give one month's previous notice in writing to the Superintendent of Excise Revenue, and pay such fine not exceeding six months' license fees as the Superintendent of Excise Revenue may adjudge, over and above the amounts already paid in advance.

(*f*)—That the currency of the license is to commence on the 1st April 1890, on which date the purchaser is to open his shop, in all respects prepared for the accommodation of customers, to be certified by an Excise Officer—failure to comply with this condition is to be met by the immediate cancelment of the license, the forfeiture of the deposit, and the levy of the fees for the month except in the case of delay caused by the non-issue of the Police certificate or Police license, for which a reasonable extension of time may be allowed upon application and cause shown to the Superintendent of Excise Revenue.

(*g*)—That where the amount of the sum payable in advance is required to be paid at once in cash, and the bidder fails to make such payment, the officer conducting the sale is either immediately to put up the lot again for sale, or after the other lots in the list have been disposed of, or he may postpone the sale to such future date as he shall then and there notify; and the defaulting purchaser is to be debarred from bidding for such lot, or for any other lot, and he is not to be allowed to remain in the auction-room; and that the defaulting purchaser will be liable for any loss that may accrue to Government in case it becomes necessary to re-sell a lot at a lower rate, either in consequence of his failure to deposit the sum payable at the time of sale, or to redeem his promissory note on or before 4 P.M. on the day following that on which the note was signed.

(*h*)—That the purchasers are to adhere to all the provisions of the Opium, Excise and Police laws, and of the rules which have been or may from time to time be prescribed by the Board of Revenue.

8. All sales subsequent to the date of the triennial sale in March are to be held subject to the conditions contained in this notification, so far as they may be applicable.

9. Any further information regarding the auction may be had on application at the Office of the Superintendent of Excise Revenue.

D. G. BONNERJEE,

Superintendent of Excise Revenue,
Calcutta, the Suburbs, Howrah, and Bally.

OFFICE OF THE SUPDT. OF EXCISE REVENUE; 4, BANKSHALL STREET, CALCUTTA, *the 14th February* 1890.

INSOLVENT NOTICES.

In the Court for the Relief of Insolvent Debtors at Calcutta.

In the matter of BUNSIDHUR SINGHANIA, lately carrying on business as piece-goods dealer and commission agent at No. 68, Cotton Street, in the town of Calcutta, under the name, style and firm of KRIPARAM SOOKDYAL, an insolvent.

On Wednesday, the 15th day of January last, it was, on the petition of Jumna Dhur, Joogulkissore, creditors of the said insolvent, adjudged that the said Bunsidhur Singhania hath committed an act of insolvency, under the provisions of the Act XI Vic., Chapter XXI, and by another order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

E. J. Fink, Attorney. (3538—2)

In the matter of SUJUN COOMAR AND BUNGSEEDHUR of No. 90, Cross Street, in the Town of Calcutta, lately trading in co-partnership as merchants and agents, under the style and firm of Himutram Sujun Coomar, insolvents.

On Monday, the 27th day of January last, it was, on the petition of Luchme Chand, a creditor of the said insolvents, adjudged that the said Sujun Coomar and Bungseedhur have committed an act of insolvency under the provisions of the Act XI Vic., Chapter XXI, and by another order of the same date the estate and effects of the said insolvents were vested in the Official Assignee.

C. F. Pittar, Attorney. (3539—2)

Chief Clerk's Office, the 11th day of February 1890.

POSTAL NOTICES.

Mails for	Date of closing at Calcutta.	Route by which despatched.
	1890.	
Egypt, Europe, America, Cape Colonies through United Kingdom.	25th Feb. ...	Per P. & O. steamer from Bombay.
Ditto (book-post and pattern packets)	24th „	Ditto.
Mauritius, Mahe (Seychelles), Majotte, Nossi Be and Réunion.	25th „	Ditto.
Zanzibar, Mozambique, Delagoa Bay, Natal and Cape Colonies	25th „	Ditto.
Ceylon, Straits Settlements, Netherlands India, Labuan, Bankok (Siam), Philippine Islands, China and Japan.	24th „	Ditto.
Australia, New Zealand, and Tasmania.	24th „	Ditto.
Madras, Pondicherry, Ceylon, Batavia, Singapore and China.	20th „	Per French steamer *Niemen*.
Madras and Colombo ...	19th „	Per P. & O. steamer *Peshawur*.
Straits, China and Japan ...	27th „	Per str. *Moray*.
Rangoon and Moulmein ...	19th „	Ditto *Khandalla*.
Ditto ditto ...	21st „	Ditto *Putiala*.
Akyab, Kyaukpyu, Sandoway and Rangoon.	19th „	Ditto *Cocanada*.
Port Blair ...	27th „	Ditto *Peshawa*.
Natal and Mauritius ...	28th „	Ditto *Warora*.

N.B.—The letter-box for inland articles (including articles for Burma and Port Blair and for Ceylon by land route) will be cleared for the last time for articles without the late-fee at 7 P.M. precisely, after which hour inland letters and papers fully prepaid and bearing an extra postage stamp of half-anna will be received up to 7-30 P.M.

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E. HUTTON, Presidency Postmaster.

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Ashmore, W. C.
Barook & Co.
Forstner & Grosse.
Glasier, H.
Harris, John.
Presgrave, Richard Duncan.
Simpson, G. T.

Letters marked Care of "Post Office."

Ardesher, C,
Babonau, E. Hugh,
Baggs, Mrs.
Bain, Donald M.
Baldwin, W. H.
Baragerey, L.
Barker, F. W.
Barnafeom, F.
Baxter, Mrs.
Belitski, R.
Berkeley, C. M.
Brown, W.
Bery, Adolph.
Broomsgrove, F.
Bruce, R. G.
Carbery, Lady.
Chatterton, J.
Cooper, W.
Courage, R.
Crump, Mrs. E.
Davis, Mrs. G.
DePalma, Urbans.
Dickson, Mrs. E.
Douglas, G. P. H.
Drakeford, A.
Duclore, G. P.
Dymond, G. F.
Elliott, K.
Filloul Revd., S. E. V.
Fisk, F. M.
Francis, E. S. L.
Flack, F. F.
Flaherty, O. H.
Fletcher, Neil.
Forshaw, H.
Fraiser, H. C.
Fraiser, Miss F.
Francis, A. M.
Galbraith, Mr.
Gallwey, C. H.
Gantzman, Charles.
Gellett, Cecil S.
Glover, W. E.
Godwin, George.
Grahame, Henry.
Green, W. W.
Griffiths, A. G.
Hamilton, C. J.
Hamilton, J. R.
Handcock, J. G.
Hardman, G. D.
Harrington, J. C.
Humphries, Mrs. H.
Hunter, H. C.
Hardy, Mrs. M.
Hawksworth, Mrs.
Hewett, F. J.
Hilton, R. W.
Horus, Miss M. L.
Jackson, T.
Keane, J. J.
Kennard, F.
Lach, R.
Lamb, E. G.
Langer, J. O.
Lindeman, L. K.
Linton, C. E.
Livesey, Thomas.
Livewright, R.
Lloyd, Willis.
Long, W.
MacMaster, Donald.
Mackenzie, J.
Major, A.
Manual, A. M.
Matthews, J. R.
Mathewson, F.
Maxwell, Sir, J. S.
May, J. J.
McAdoo, Mr.
McKenzie, Mrs D.
McNair, Miss.
McSmith, D.
Menexis, Mrs. C.
Menzies, C.
Mifsud George.
Mole, P. C.
Morshead, L.
Murphy, John.
Newby, C. R. A.
O'Mealy, Capt. D'Oyly.
Penn, Mrs.
Platts, Mrs. S. K.
Powell, F.
Prenter, Miss.
Rennrick, F. B. M.
Rennard, J. R.
Rodnor, W. H.
Rosenstern, Otto.
Roskell, Richard.
Rubie, Phil C.
Sano, T.
Searle, F. W.
Sevestre, J.
Sheumon, John.
Shrewsbury, Miss.
Shworth, T. K.
Sisam, Rev. W. B.
Smith, M. O.
Soler, M.
Taylor, C.
Thomas, G. T.
Thomson, Captain W. A.
Thompson, D.
Thompson, G.
Ursite, Johan.
Waddell, Alex.
Walter, F.
Walter, Amherst.
Webster, Mrs.
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Broomsgrove, F.
Edwards, C.
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MacLeod, D. J.
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Barns, A.
Bart, G. K.
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Chadburn, Mrs. J. E.
Ferguson, H. F.
Harding, H. R.
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Johnstun, J.
Kindersley, C. E.
Lindsay, W. C.
McMinn, J.
Mertan, C. W.
Palore, L.
Stevens, Mrs. C.
Thompson, Jas.

E. HUTTON,
Presidency Postmaster, Calcutta.

Nuddea Rivers.

Report showing the least depths of water for the week ending Friday, the 14th February 1890.

Name of river.	Reach of river.	Least depth of water soundings.	Remarks.
		Ft. In.	
Bhagirati.	Entrance from Ganges ...	0 0	At mouth entrance practically closed.
	Thence to Nurpur	0 6	Molnapore.
	From Nurpur to Jungipur ...	1 0	Bangabari.
	,, Jungipur to Berhampur	1 0	Palanpara.
	,, Berhampur to Cutwa ...	1 6	Harinathpore.
	,, Cutwa to Nuddea ...	2 3	Nuddy.
Bhyrub Jelinghi.	Entrance from Ganges ...	5 6	
	Thence to Akrigunj	5 0	
	Akrigunj to junction of the Bhyrub and Jelinghi ...	4 0	Chukjama.
	Thence to Patkabari	4 6	Modhupore.
	Patkabari to Nuddea	3 9	Punditpore.
Matabanga.	Entrance from Ganges ...	1 6	
	Thence to Chuypara ...	0 6	Sircarpara.
	From Chuypara to Shikarpur	0 6	Pragpore.
	,, Shikarpur to Boalia ...	0 6	Shampore.
	,, Boalia to Chuadanga ...	2 6	Simlnari.
	,, Chuadanga to Kissengunj and Hanskhali..	2 3	Bastupore.

Gauge Readings.

	Locality.	Date.	Hour.	Height above zero.	Height above mean sea level.	Remarks.
			A. M.	Feet.	Feet.	
Ganges.	Sahebganj ...	15-2-90	6	1·58	66·42	Below zero.
	Rampore Boalia	15-2-90	12	0·08	42·08	
	Entrance of Bhagirati ...	15-2-90	7	1·85	47·16	
	Entrance of Bhyrub-Jelinghi ...	15-2-90	...	6·50	44·86	
	Entrance of Matabanga ...	15-2-90	...	2·35	...	
Bhagirati...	Berhampur ...	16-2-90	12	2·16	35·95	
Jelinghi ...	Kishnaghur ...	14-2-90	...	3·25	12·14	
	Saroopgunge ...	15-2-90	6	2·46	0·76	
Matabanga	Hanskhali ...	14-2-90	...	2·70	13·55	

C. E. LIVESAY, C.E.,
Exe. Engr., Nuddea Rivers Division.

Berhampore, the 17th February 1890.

Annual Statement of the Seaborne Trade

and Navigation of the Bengal Presidency and of its Chief Port (Calcutta) and each of its Subordinate Ports (Chittagong, Balasore, Cuttack, Pooree, and Naraingunge). Volumes I and II. Price Rs. 20 for 1888-89 Published at the Calcutta Custom House. Previous years volumes can also be obtained at the same price.

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Ditto ditto	1869	...	„	2 4	„
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Ditto ditto	1871	...	„	2 8	„
Ditto ditto	1872	...	„	3 0	„
Ditto ditto	1873	...	„	3 0	„
Ditto ditto	1874	...	„	3 0	„
Administration Report of	1870-71	...	„	0 4	„
Ditto ditto	1871-72	...	„	0 4	„
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JOHN ELIOT, M.A., *Meteorological Reporter to the Govt. of Bengal.*

CALCUTTA, the 26th August 1875.

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Subscriptions payable to the Meteorological Reporter to the Government of Bengal for the Bay of Bengal, Daily Report, and to the Accountant and Treasurer Bengal Secretariat, for the other reports.

ALEX. PEDLER,

Offg. Meteorological Reporter to the Govt. of Bengal.

Meteorological Office, Bengal, the 17th March 1880.

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H. A. D. PHILLIPS,
Under-Secy. to the Govt. of Bengal.
The 24th November 1886.

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The same rates as those for the mofussil, with the exception of the charge for postage.

The Calcutta Gazette.

PUBLISHED BY AUTHORITY.

WEDNESDAY, FEBRUARY 19, 1890.

☞ Separate paging is given to this Part in order that it may be filed as a separate compilation.

PART V.

Acts of the Governor General's Council assented to by the Governor General.

GOVERNMENT OF INDIA.

LEGISLATIVE DEPARTMENT.

The following Act of the Governor General of India in Council received the assent of His Excellency the Governor General on the 14th February, 1890, and is hereby promulgated for general information:—

ACT NO. I OF 1890.

An Act to make better provision for recovering certain public demands.

WHEREAS it is expedient to make better provision for recovering certain public demands; It is hereby enacted as follows:—

Title, extent and commencement.

1. (*1*) This Act may be called the Revenue Recovery Act, 1890.

(*2*) It extends to the whole of British India, inclusive of Upper Burma and British Baluchistan; and

(*3*) It shall come into force at once.

Definitions.

2. In this Act, unless there is something repugnant in the subject or context,—

(*1*) "district" includes a presidency-town:

(*2*) "Collector" means the chief officer in charge of the land-revenue administration of a district: and

(*3*) "defaulter" means a person from whom an arrear of land-revenue, or a sum recoverable as an arrear of land-revenue, is due, and includes a person who is responsible as surety for the payment of any such arrear or sum.

Recovery of public demands by enforcement of process in other districts than those in which they become payable.

3. (*1*) Where an arrear of land-revenue, or a sum recoverable as an arrear of land-revenue, is payable to a Collector by a defaulter being or having property in a district other than that in which the arrear accrued or the sum is payable, the Collector may send to the Collector of that other district a certificate in the form as nearly as may be of the schedule, stating—

(*a*) the name of the defaulter and such other particulars as may be necessary for his identification, and

(*b*) the amount payable by him and the account on which it is due.

(*2*) The certificate shall be signed by the Collector making it, and, save as otherwise provided by this Act, shall be conclusive proof of the matters therein stated.

(*3*) The Collector of the other district shall, on receiving the certificate, proceed to recover the amount stated therein as if it were an arrear of land-revenue which had accrued in his own district.

Remedy available to person denying liability to pay amount recovered under last foregoing section.

4. (*1*) When proceedings are taken against a person under the last foregoing section for the recovery of an amount stated in a certificate, that person may, if he denies his liability to pay the amount or any part thereof and pays the same under protest made in writing at the time of payment and signed by him or his agent, institute a suit for the re-payment of the amount or the part thereof so paid.

(*2*) A suit under sub-section (*1*) must be instituted in a Civil Court having jurisdicti in the local area in which the office of the Collector who made the certificate is situate, and the suit shall be determined in accordance with the law in force at the place where the arrear accrued or the liability for the payment of the sum arose.

(*3*) In the suit the plaintiff may, notwithstanding anything in the last foregoing section, but subject to the law in force at the place aforesaid, give evidence with respect to any matter stated in the certificate.

Recovery by Collectors of sums recoverable as arrears of revenue by other public officers or by local authorities.

5. Where any sum is recoverable as an arrear of land-revenue by any public officer other than a Collector or by any local authority, the Collector of the district in which the office of that officer or authority is situate shall, on the request of the officer or authority, proceed to recover the sum as if it were an arrear of land-revenue which had accrued in his own district, and may send a certificate of the amount to be recovered to the Collector of another district under the foregoing provisions of this Act as if the sum were payable to himself.

Property liable to sale under this Act.

6. (*1*) When the Collector of a district receives a certificate under this Act, he may issue a proclamation prohibiting the transfer or charging of any immoveable property belonging to the defaulter in the district.

(*2*) The Collector may at any time, by order in writing, withdraw the proclamation, and it shall be deemed to be withdrawn when either the amount stated in the certificate has been recovered or the property has been sold for the recovery of that amount.

(*3*) Any private alienation of the property or of any interest of the defaulter therein, whether by sale, gift, mortgage or otherwise, made after the issue of the proclamation and before the withdrawal thereof shall be void as against the Government and any person who may purchase the property at a sale held for the recovery of the amount stated in the certificate.

(*4*) Subject to the foregoing provisions of this section, when proceedings are taken against any immoveable property under this Act for the recovery of an amount stated in a certificate, the interests of the defaulter alone therein shall be so proceeded against, and no incumbrances created, grants made or contracts entered into by him in good faith shall be rendered invalid by reason only of proceedings being taken against those interests.

(*5*) A proclamation under this section shall be made by beat of drum or other customary method and by the posting of a copy thereof on a conspicuous place in or near the property to which it relates.

Saving of local laws relating to revenue.

7. Nothing in the foregoing sections shall be construed—

(*a*) to impair any security provided by, or affect the provisions of, any other enactment for the time being in force for the recovery of land-revenue or of sums recoverable as arrears of land-revenue, or

(*b*) to authorise the arrest of any person for the recovery of any tax payable to the corporation, commissioner, committee, board, council or person having authority over a municipality under any enactment for the time being in force.

Recovery in British India of certain public demands arising beyond British India.

8. When this Act has been applied to any local area which is under the administration of the Governor General in Council but which is not part of British India, an arrear of land-revenue accruing in that local area, or a sum recoverable as an arrear of land-revenue and payable to a Collector or other public officer or to a local authority in that local area, may be recovered under this Act in British India.

THE SCHEDULE.

CERTIFICATE.

(*See section 3, sub-section (1).*)

From

The Collector of

To

The Collector of .

Dated the of 18 .

The sum of Rs. is payable on account of by , son of , resident of , who is believed (to be at) (to have property consisting of at) in your district.

Subject to the provisions of the Revenue Recovery Act, 1890, the said sum is recoverable by you as if it were an arrear of land-revenue which had accrued in your own district, and you are hereby desired so to recover it and to remit it to my office at .

A. B.,
Collector of .

S. HARVEY JAMES,
Secretary to the Government of India.

GOVERNMENT OF INDIA.

LEGISLATIVE DEPARTMENT.

The following Act of the Governor General of India in Council received the assent of His Excellency the Governor General on the 14th February, 1890, and is hereby promulgated for general information :—

ACT NO. II OF 1890.

An Act to amend Acts XVII of 1864, X of 1865, II of 1874 and V of 1881.

WHEREAS it is expedient to amend Act XVII of 1864 (*an Act to constitute an Office of Official Trustee*), the Indian Succession Act, 1865, the Administrator General's Act, 1874, and the Probate and Administration Act, 1881; It is hereby enacted as follows :—

Act XVII of 1864.

Addition to section 1, Act XVII, 1864.

1. In section 1 of Act XVII of 1864, before the definition of the expression "High Court", the following shall be inserted, namely :—

"Government."

"The word 'Government' shall mean, in relation to the Presidency of Fort William in Bengal, the Governor General in Council; in relation to the Presidency of Fort St. George, the Governor of Fort St. George in Council; and, in relation to the Presidency of Bombay, the Governor of Bombay in Council:".

Insertion of new section after section 1, Act XVII, 1864.

2. After section 1 of the said Act the following shall be inserted, namely :—

Construction of references to Presidencies.

"2. In this Act references to the Presidency of Fort William in Bengal, the Presidency of Fort St. George and the Presidency of Bombay shall, as regards all persons for whom the Governor General in Council has for the time being power to make laws and regulations, be read as references to the Presidency of Bengal, the Presidency of Madras and the Presidency of Bombay, respectively, as those expressions are severally defined in the law for the time being in force relating to the office and duties of Administrator General."

Substitution of new section for section 5.

3. For section 5 of the said Act the following shall be substituted, namely :—

Appointment, suspension and removal of Official Trustees.

"5. Every Official Trustee appointed under this Act shall be appointed and may be suspended or removed from his office by the Government."

Amendment of section 6, Act XVII, 1864.

4. In section 6 of the said Act, for the words "Chief Justice by whom he is appointed" the word "Government" shall be substituted.

Amendment of section 7, Act XVII, 1864.

5. For the portion of section 7 of the said Act beginning with the words "It shall be lawful for the Chief Justice of the High Court" and ending with the words "it shall be lawful for the Chief Justice to appoint some person to officiate as Official Trustee" the following shall be substituted, namely :—

"It shall be lawful for the Government from time to time to grant leave of absence to the Official Trustee, but subject always to such and the like rules as may be for the time being in force as to leave of absence of officers attached to the High Court. Whenever any Official Trustee shall obtain leave of absence, it shall be lawful for the Government to appoint some person to officiate as Official Trustee,".

Addition to section 11, Act XVII, 1864.

6. To section 11 of the said Act the following shall be added, namely :—

"Provided that the High Court, by its order appointing the Official Trustee to be trustee of such property, may, for special reasons to be recorded by the Court, direct that the Official Trustee shall be entitled by way of remuneration, in respect of the capital moneys, sums and rents aforesaid, or any of them, to a commission at rates or a rate to be specified in the order and exceeding the rates or rate hereinbefore in this section prescribed."

Addition of sections to Act XVII, 1864.

7. To the said Act, after section 32, the following shall be added, namely :—

Compliance with requisitions for returns.

"33. The Official Trustee shall comply with such requisitions as may be made by the Government for returns and statements, in such form and manner as the Government may deem proper.

Division of the Presidency of Fort William in Bengal into Provinces.

"34. (1) Notwithstanding anything in the foregoing provisions of this Act, the Governor General in Council, upon the occurrence of any vacancy in the

office of the Official Trustee of Bengal, may, by notification in the Gazette of India,—

(*a*) divide the Presidency of Fort William in Bengal into so many Provinces as he thinks fit,

(*b*) define the limits of each of those Provinces, and

(*c*) appoint an Official Trustee for each Province,

and, subject to the provisions of this section, the following consequences shall thereupon ensue, namely:—

(*i*) the office of Official Trustee of Bengal shall cease to exist:

(ii) the Official Trustee of a Province shall have the like rights and privileges, and perform the like duties, in the territories and dominions included in the Province as the Official Trustee of Bengal had and performed as Official Trustee therein:

(iii) the functions of the Government under this Act shall, as regards the territories and dominions included in the Province, be discharged by the Governor General in Council:

(iv) the functions of whatsoever kind assigned by the foregoing provisions of this Act to the High Court of Judicature at Fort William in Bengal in respect of the territories and dominions included in a Province shall be discharged by such High Court as the Governor General in Council may, by notification in the Gazette of India, appoint in this behalf:

(v) in the foregoing provisions of this Act, the word 'Presidency' shall be deemed to include a Province, the expression 'Chief Justice' the Chief Justice, senior Judge or sole Judge, as the case may be, of a High Court appointed by the Governor General in Council under clause (iv) of this sub-section, and the expression 'Advocate General' a Government Advocate or other officer appointed by the Governor General in Council to discharge for a Province the functions under this Act of an Advocate General for a Presidency: and,

(vi) generally, the provisions of the foregoing sections and of any other enactment for the time being in force with respect to the Official Trustee of Bengal shall, in relation to a Province, be construed, so far as may be, to apply to the Official Trustee appointed for the Province under this section.

(*2*) Any proceeding which was commenced before the publication of the notification dividing the Presidency of Fort William in Bengal into Provinces, and to or in which the Official Trustee of Bengal in his representative character was a party or was otherwise concerned, shall be continued as if the notification had not been published, and the Official Trustee of the Province in which the Town of Calcutta is comprised shall for the purposes of the proceeding be deemed to be the successor in office of the Official Trustee of Bengal, and shall hold and execute the trusts of which immediately before the publication of the notification the Official Trustee of Bengal was trustee in all respects as if he were such successor.

(*3*) The Court of the Recorder of Rangoon shall be deemed to be a High Court for the purposes of clause (iv) of sub-section (*1*)."

Official Trustees holding office at commencement of this Act.

8. Every person holding the office of Official Trustee at the commencement of this Act shall be deemed to have been appointed under Act XVII of 1864 as amended by this Act.

The Indian Succession Act, 1865.

Addition of new section after section 326, Act X, 1865.

9. After section 326 of the Indian Succession Act, 1865, the following shall be inserted, namely:— X of

"326A. Where a person not having his domicile in British India has died leaving assets both in British India and in the country in which he had his domicile at the time of his death, and there have been a grant of probate or letters of administration in British India with respect to the assets there and a grant of administration in the country of domicile with respect to the assets in that country, the executor or administrator, as the case may be, in British India, after having given such notices as are mentioned in section 320 and after having discharged, at the expiration of the time therein named, such lawful claims as he knows of, may, instead of himself distributing any surplus or residue of the deceased's property to persons residing out of British India who are entitled thereto, transfer, with the consent of the executor or administrator, as the case may be, in the country of domicile, the surplus or residue to him for distribution to those persons."

Transfer of assets from British India to executor or administrator in country of domicile for distribution.

The Administrator General's Act, 1874.

Amendment of definitions of "Presidency of Bengal" and "Presidency of Bombay" in section 3, Act II, 1874.

10. In clause (*b*) of the definition of the expression "Presidency of Bengal" in section 3 of the Administrator General's Act, 1874, the word "Burma" shall be substituted for the words "British Burma", and to clause (*a*) of the definition of the expression "Presidency of Bombay" in the same section of that Act the words "and under the administration of the Chief Commissioner of British Baluchistan" shall be added. II of

Substitution of new paragraph for first paragraph of section 37, Act II, 1874

11. (*1*) For the first paragraph of section 37 of the said Act, as amended by section 5 of the Administrator General's Act, 1881, beginning with the words "If in cases falling within section 36" and ending with the words "as if such letters had been granted to him", the following shall be substituted, namely:— IX

"If, in cases falling within section 36, no person claiming otherwise than as a creditor to be entitled to a share of the effects of the deceased obtains, within three months, a

certificate from the Administrator General under the same section, or letters of administration to the estate and effects of the deceased, and such deceased was not a Hindu, Muhammadan, Parsi or Buddhist, or exempted under the Indian Succession Act, 1865, section 332, from the operation of that Act, the Administrator General may administer the estate and effects without letters of administration, in the same manner as if such letters had been granted to him;".

(2) The portion of section 5 of the Administrator General's Act, 1881, beginning with the words "and in section 37 of the same Act" and ending with the words "from the operation of that Act" is hereby repealed.

Addition of new section after section 41, Act II, 1874.

12. After section 41 of the said Act the following shall be inserted, namely:—

Transfer of certain assets from British India to executor or administrator in country of domicile for distribution.

"41A. Where a person not having his domicile in British India has died leaving assets both in British India and in the country in which he had his domicile at the time of his death, and proceedings for the administration of his estate with respect to assets in British India have been taken under section 36 or section 37, and there has been a grant of administration in the country of domicile with respect to the assets in that country, the holder of the certificate granted under section 36 or section 37, or the Administrator General, as the case may be, after having given such notices as the High Court may by any general rule to be made from time to time prescribe, for creditors and others to send in to him their claims against the estate of the deceased, and after having discharged, at the expiration of the time therein named, such lawful claims as he knows of, may, instead of himself distributing any surplus or residue of the deceased's property to persons residing out of British India who are entitled thereto, transfer, with the consent of the executor or administrator, as the case may be, in the country of domicile, the surplus or residue to him for distribution to those persons."

Addition to section 64, Act II, 1874.

13. To section 64 of the said Act the following shall be added, namely:—

"The District Judge may cause to be paid out of any property of which he or such officer has charge, or out of the proceeds of such property or of any part thereof, such sums as may appear to him to be necessary for all or any of the following purposes, namely:—

(a) the payment of the expenses of the funeral of the deceased and of obtaining probate of his will or letters of administration to his estate and effects,

(b) the payment of wages due for services rendered to the deceased within three months next preceding his death by any labourer, artizan or domestic servant, and

(c) the relief of the immediate necessities of the family of the deceased,

and nothing in section 279, section 280 or section 281 of the Indian Succession Act, 1865, or in any other law for the time being in force with respect to rights of priority of creditors of deceased persons, shall be held to affect the validity of any payment so caused to be made."

Addition to Part VI, Act II, 1874.

14. To Part VI, and after section 66, of the said Act the following shall be added, namely:—

Compliance with requisitions for returns.

"67. The Administrator General shall comply with such requisitions as may be made by the Government for returns and statements, in such form and manner as the Government may deem proper."

Addition to Act II, 1874, of a Part respecting the division of the Presidency of Bengal into Provinces.

15. To the said Act, after Part VI and section 67 thereof, the following shall be added, namely:—

"PART VII.

DIVISION OF THE PRESIDENCY OF BENGAL INTO PROVINCES.

Division of the Presidency of Bengal into Provinces.

68. (1) Notwithstanding anything in the foregoing provisions of this Act, the Governor General in Council, upon the occurrence of any vacancy in the office of the Administrator General of Bengal, may, by notification in the Gazette of India,—

(a) divide the Presidency of Bengal, as defined in this Act, into so many Provinces as he thinks fit,

(b) define the limits of each of those Provinces, and

(c) appoint an Administrator General for each Province,

and, subject to the provisions of this section, the following consequences shall thereupon ensue, namely:—

(i) the office of Administrator General of Bengal shall cease to exist:

(ii) the Administrator General of a Province shall have the like rights and privileges, and perform the like duties, in the territories and dominions included in the Province as the Administrator General of Bengal had and performed as Administrator General therein:

(iii) the functions of the Government under this Act shall, as regards the territories and dominions included in a Province, be discharged by the Governor General in Council:

(iv) the functions of whatsoever kind assigned by the foregoing provisions of this Act to the High Court at Calcutta in respect of the territories and dominions included in a Province shall be discharged by such High Court as the Governor General in Council may, by notification in the Gazette of India, appoint in this behalf, and probate or letters of administration granted to the Administrator General of the Province by the High Court so appointed shall have the same effect throughout the Presidency of Bengal, as defined

in this Act, or, if the Court so directs, throughout British India, as, but for the abolition of the office of Administrator General of Bengal, probate or letters of administration granted to the holder of that office by the High Court at Calcutta would have had :

(v) in the foregoing provisions of this Act the word 'Presidency' shall be deemed to include a Province, the expression 'Presidency-town' the place of sitting of a High Court appointed by the Governor General in Council under clause (iv) of this sub-section, and the expression 'Advocate General' a Government Advocate or other officer appointed by the Governor General in Council to discharge for a Province the functions under this Act of an Advocate General for a Presidency :

(vi) the provisions of this Act with respect to the commission of the Administrator General of Bengal shall regulate the commission payable to the Administrator General of a Province : and,

(vii) generally, the provisions of the foregoing sections of this Act with respect to the High Court at Calcutta, and the provisions of those sections or of any other enactment with respect to the Administrator General of Bengal, shall, in relation to a Province, be construed, so far as may be, to apply to the High Court and Administrator General, respectively, appointed for the Province under this section.

(*2*) Any proceeding which was commenced before the publication of the notification dividing the Presidency of Bengal into Provinces and to or in which the Administrator General of Bengal in his representative character was a party or was otherwise concerned shall be continued as if the notification had not been published, and the Administrator General of the Province in which the town of Calcutta is comprised shall for the purposes of the proceeding be deemed to be the successor in office of the Administrator General of Bengal.

(*3*) The Court of the Recorder of Rangoon shall be deemed to be a High Court for the purposes of clause (iv) of sub-section (*1*).

(*4*) Notwithstanding any division of the Presidency of Bengal, as defined in this Act, into Provinces under this section, the Administrator General of the Province in which the town of Calcutta is comprised shall be deemed to be the Administrator General for the whole of the said Presidency for the purposes of the Regimental Debts Act, 1863." 26 & 27 c. 57.

The Probate and Administration Act, 1881.

16. After section 145 of the Probate and Administration Act, 1881, the following shall be inserted, namely :— V of

Addition of new section after section 145, Act V, 1881.

"145A. Where a person not having his domicile in British India has died leaving assets both in British India and in the country in which he had his domicile at the time of his death, and there have been a grant of probate or letters of administration in British India with respect to the assets there and a grant of administration in the country of domicile with respect to the assets in that country, the executor or administrator, as the case may be, in British India, after having given such notices as are mentioned in section 139 and after having discharged, at the expiration of the time therein named, such lawful claims as he knows of, may, instead of himself distributing any surplus or residue of the deceased's property to persons residing out of British India who are entitled thereto, transfer, with the consent of the executor or administrator, as the case may be, in the country of domicile, the surplus or residue to him for distribution to those persons."

Transfer of assets from British India to executor or administrator in country of domicile for distribution.

S. HARVEY JAMES,
Secretary to the Government of India.

The Calcutta Gazette.

PUBLISHED BY AUTHORITY.

WEDNESDAY, FEBRUARY 19, 1890.

☞ Separate paging is given to this Part in order that it may be filed as a separate compilation.

PART VI.

Bills introduced into the Council of the Governor General for making Laws and Regulations, or published under Rule 22.

GOVERNMENT OF INDIA.

LEGISLATIVE DEPARTMENT.

The following Bill was introduced into the Council of the Governor General of India for the purpose of making Laws and Regulations on the 14th February, 1890:—

NO. 4 OF 1890.

A Bill to amend Acts I of 1859, VII of 1880 and V of 1883.

WHEREAS it is expedient to amend Act I of 1859 (*for the amendment of the law relating to Merchant Seamen*), the Indian Merchant Shipping Act, 1880, and the Indian Merchant Shipping Act, 1883, in manner hereinafter appearing; It is hereby enacted as follows:—

Act I of 1859.

Addition of section after section 24, Act I, 1859.

1. After section 24 of Act I of 1859 the following shall be inserted, namely:—

"24A. (*1*) When a running agreement with the crew of a foreign-going ship has been made under section 23 and the ship arrives after the next following thirtieth day of June or thirty-first day of December at a port of destination in India which is not the port therein at which the crew have agreed to be discharged, the master may, with the previous sanction of the shipping-master, renew the agreement with the crew, or may be required by the shipping-master so to renew the agreement, for the voyage from such port of destination to the port in India at which the crew have agreed to be discharged.

Renewal of running agreements in certain cases.

"(*2*) If the master of the ship is required by the shipping-master to renew the agreement as aforesaid and refuses so to renew it, any expenses which may be incurred by the Government for the subsistence of the crew and their conveyance to the port at which they have agreed to be discharged shall be a charge upon the ship, and shall be recoverable as if they were expenses incurred in respect of distressed seamen under the provisions of Chapter III of the Indian Merchant Shipping Act, 1880." VII of

2. To section 115 of the same Act the following shall be added, namely:—

Amendment of section 115, Act I, 1859.

"and for the repayment to the Secretary of State for India in Council of all expenses which may be incurred by the Government in respect of any such lascar or other native seaman who may be discharged or left behind at any port out of India and becomes distressed and is relieved under the provisions of the Merchant Shipping Act, 1854, section 211, and the enactments amending the same." 17 & 1 c. 104.

The Indian Merchant Shipping Act, 1880.

3. In section 74 of the Indian Merchant Shipping Act, 1880, after the words "so appointed" the words "or bringing within such limits any wreck which has been found and taken possession of elsewhere" shall be inserted.

Amendment of section 74, Act VII, 1880. VII of

The Indian Merchant Shipping Act, 1883.

4. To section 6 of the Indian Merchant Shipping Act, 1883, the following shall be added, namely:—

Amendment of section 6, Act V, 1883. V of 1

"(*4*) The word "coasts" in this section includes the coasts of creeks and tidal rivers."

5. For sub-section (*1*) of section 7 of the same Act the following shall be substituted, namely:—

New sub-section substituted for sub-section (*1*) of section 7, Act V, 1883.

"If the Local Government to which the report or notice prescribed by the last foregoing section has been made or given, or within whose territories any competent witnesses of any such loss, abandonment, stranding, damage or casualty as is described in clause (*a*), (*b*), (*c*) or (*d*) of sub-section (*1*) of the same section have arrived or are to be found or any evidence of

Power for Local Government to appoint Special Court of Investigation.

such supposed loss as is described in clause (*e*) of the same sub-section can be obtained, is of opinion that a formal investigation into the facts mentioned in any of the said clauses is requisite or expedient, such Local Government may appoint a special Court, consisting of not less than two nor more than four persons, and direct that Court to make the investigation, and may fix the place for making the same."

Amendment of section 8, Act V, 1883.

6. In section 8 of the same Act, after the words "Local Government" the words "or by such officer as the Local Government has empowered in this behalf" shall be inserted.

Amendment of section 20, Act V, 1883.

7. In section 20 of the same Act, clause (*a*) and the proviso shall be repealed.

Addition of section after section 24, Act V, 1883.

8. After section 24 of the same Act the following shall be added, namely:—

Power to Court to suspend or cancel certificates granted by Local Government.

"24A. (*1*) Notwithstanding anything in the foregoing provisions of this Act, a certificate (whether of competency or service) which has been granted by any Local Government to a master, mate or engineer, but has not been granted under the provisions of the Merchant Shipping (Colonial) Act, 1869, or of any Order in Council under the said Act, may, if a Court conducting an investigation under this Act finds that the loss, stranding or abandonment of or damage to any ship, or loss of life, has been caused by the wrongful act or default of the master, mate or engineer, or that he is incompetent or has been guilty of any gross act of drunkenness, tyranny or other misconduct, be suspended or cancelled by the Court:

"Provided that the Court shall not suspend or cancel a certificate unless the holder of the certificate was furnished before the commencement of the investigation with the copy of the report or statement required by section 9 or section 10, as the case may be.

"(*2*) At the conclusion of the investigation, or as soon afterwards as possible, the Court shall state in open sitting the decision to which it may have come with respect to the cancelment or suspension of any certificate.

"(*3*) A master, mate or engineer whose certificate has been cancelled or suspended by the Court shall, on demand by the Court, deliver the certificate to the Court, and the Court shall forward it to the Local Government together with the report which it is required by section 17, sub-section (*1*), to transmit to that Government.

"(*4*) A master, mate or engineer failing to deliver a certificate as required by sub-section (*3*) shall be punished with fine which may extend to five hundred rupees.

"(*5*) The duties imposed and powers conferred by sections 22, 23 and 24 on the Local Government which cancels or suspends a certificate shall, when a Court has under this section cancelled or suspended a certificate, be performed and exercised by the Local Government to which the Court has forwarded the certificate under sub-section (*3*), as if such Local Government had itself cancelled or suspended the certificate under section 20."

STATEMENT OF OBJECTS AND REASONS.

THE objects of this Bill are the following:—

(*a*) to amend Act I of 1859 (*for the amendment of the law relating to Merchant Seamen*) so as to make it lawful for the master of a foreign-going ship, when the term of a running agreement has expired at a port in India which is not also the port at which the crew have agreed to be discharged, to renew the agreement, with the sanction of the shipping-master at the port at which the agreement has expired, for the voyage from that port to the port in India which is the port of discharge agreed to by the crew (section 1);

(*b*) to provide in section 115 of the same Act for the indemnification of the State against expenses incurred in the relief of lascars left abroad by masters of foreign vessels (section 2);

(*c*) to provide, in amendment of section 74 of the Indian Merchant Shipping Act, 1880, that all wreck found outside, but brought within, the local limits for which a Receiver of Wreck has been appointed, as well as wreck found within those limits, shall be delivered to the Receiver (section 3);

(*d*) to explain that the word "coasts" in section 6 of the Indian Merchant Shipping Act, 1883, includes the coasts of creeks and tidal rivers (section 4);

(*e*) to provide in Chapter II of the same Act for giving power to a Local Government to convene a Court of Investigation into a casualty which has occurred in the jurisdiction of, or been reported to, another Local Government, when it may be advisable to hold such a Court by reason of the witnesses being within the jurisdiction of the Local Government or for other sufficient cause (section 5);

(*f*) to provide in section 8 of the same Act that the Governor of Bombay in Council may delegate to the Political Resident at Adén his powers under that section in respect of investigations at Aden into shipping casualties (section 6); and

(*g*) to provide, in amendment of Chapter III of the same Act, that Courts of Investigation may cancel or suspend local certificates of competency or service as they may now cancel or suspend Board of Trade and Colonial certificates.

2. These amendments of Act I of 1859 and the Indian Merchant Shipping Acts of 1880 and 1883 have been shown by experience to be either necessary or desirable.

The 7th February, 1890.

D. BARBOUR.

S HARVEY JAMES,
Secretary to the Government of India.

[REGISTERED No. 29.]

No. 9 of 1890.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 26, 1890.

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PART I.

Orders and Notifications by the Lieutenant-Governor of Bengal, the High Court, Government Treasury, &c.

ORDERS BY THE LIEUT.-GOVERNOR OF BENGAL.

No. 167A.

GENERAL.—*The 12th February* 1890.—Mr. Nilkanto Sircar, Deputy Collector, is appointed to perform the functions of a Collector under section 4 of the Public Demands Recovery Act VII (B.C.) of 1880 in the district of Beerbhoom.

The 20th February 1890.—Mr. W. C. Macpherson, Officiating Magistrate and Collector, Purneah, is allowed leave for three months, under article 291 of the Civil Service Regulations, with effect from the 5th proximo.

Mr. E. W. Collin, Joint-Magistrate and Deputy Collector, is appointed to act as Magistrate and Collector of Purneah, during the absence, on leave, of Mr. W. C. Macpherson, or until further orders.

Mr. D. B. Allen, Officiating Magistrate and Collector, Pooree, is allowed furlough for nine and a half months, under article 340 of the Civil Service Regulations, with effect from the 28th instant.

Mr. F. W. Duke, Officiating Joint-Magistrate and Deputy Collector, Pooree, is appointed to act, until further orders, as Magistrate and Collector of the district.

The 22nd February 1890.—Baboo Bejoy Madhub Mookerjee, Deputy Magistrate and Deputy Collector, Narail, Jessore, is allowed leave for two months and fifteen days, under article 291 of the Civil Service Regulations, with effect from the date on which he may be relieved.

Baboo Ganendra Nath Pal, Deputy Magistrate and Deputy Collector, on leave, is appointed to have charge of the Narail sub-division of the district of Jessore, during the absence, on leave, of Baboo Bejoy Madhub Mookerjee, or until further orders.

The 24th February 1890.—Mr. A. W. B. Power, Officiating Magistrate and Collector, Chumparun, is allowed furlough for seven months, under article 340 of the Civil Service Regulations, with effect from the 22nd proximo, or such subsequent date as he may be relieved.

Mr. W. D. Blyth, Inspector-General of Registration, is appointed to act, until further orders, as Magistrate and Collector of Chumparun.

Mr. B. G. Geidt, Joint-Magistrate and Deputy Collector, Sarun, is allowed furlough for eight months, under article 340 of the Civil Service Regulations, with effect from the 31st March 1890, or such subsequent date as he may avail himself of it.

Mr. J. Posford, Officiating District and Sessions Judge, Tipperah, is allowed furlough for nine months, under article 340 of the Civil Service Regulations, with effect from the 11th March 1890, or such subsequent date as he may avail himself of it.

Mr. S. J. Douglas, Joint-Magistrate and Deputy Collector, Gya, is appointed to act, until further orders, as District and Sessions Judge of Tipperah.

Mr. A. A. Wace, Magistrate and Collector, Bhagulpore, is allowed furlough for eight months, under article 340 of the Civil Service Regulations, with effect from the 7th March 1890, or such subsequent date as he may avail himself of it.

Mr. R. M. Waller, Officiating Magistrate and Collector, Furreedpore, is appointed to act as Magistrate and Collector of Bhagulpore, during the absence, on furlough, of Mr. A. A. Wace, or until further orders.

Mr. H. Beveridge, Additional District and Sessions Judge, 24-Pergunnahs and Hooghly, is allowed leave for one month, under article 306 (*b*) of the Civil Service Regulations, with effect from the 20th proximo.

Mr. C. A. Wilkins, District and Sessions Judge, Bhagulpore, is appointed to act as Additional District and Sessions Judge of the 24-Pergunnahs and Hooghly, during the absence, on leave, of Mr. H. Beveridge, or until further orders.

Mr. F. W. Badcock, Officiating District and Sessions Judge, Rajshahye, is appointed to act as District and Sessions Judge of Bhagulpore, during the absence, on deputation, of Mr. C. A. Wilkins, or until further orders.

Mr. F. E. Pargiter, Joint-Magistrate and Deputy Collector, is appointed to act, until further orders, as District and Sessions Judge of Rajshahye.

The 25th February 1890.—Baboo Kedar Nath Dutt, Deputy Magistrate and Deputy Collector, Cuttack, is allowed leave for two and a half months, under article 291 of the Civil Service Regulations, with effect from the date on which he may be relieved.

Mr. C. Johnston, Assistant Magistrate and Collector, Kandi, Moorshedabad, is transferred to the Sudder station of the district of Cuttack.

Baboo Mohendra Nath Gupta, Deputy Magistrate and Deputy Collector, on furlough, is posted to Gya, and appointed to have charge of the Aurungabad sub-division of that district.

Baboo Sree Nath Bhudder, Deputy Magistrate and Deputy Collector, Chittagong, is allowed furlough for one year, under article 371 of the Civil Service Regulations.

Mr J. F. Bradbury, Officiating District and Sessions Judge of the first grade, is confirmed in that grade, with effect from the 20th instant, *vice* Mr. J. R. Hallett, retired.

Mr. A. W. Mackie, Officiating District and Sessions Judge, Rungpore, is appointed to be a District and Sessions Judge of the second grade, with effect from the 20th instant, *vice* Mr. J. F. Bradbury.

Mr. C. S. Bayley, substantive *pro tempore* Joint-Magistrate and Deputy Collector of the first grade, is confirmed in that grade, with effect from the 20th instant, *vice* Mr. A. W. Mackie, but will continue to be seconded.

Mr. S. J. Douglas, Joint-Magistrate and Deputy Collector, Gya, is promoted substantively *pro tempore* to the first grade of Joint-Magistrates and Deputy Collectors, with effect from the 20th instant, *vice* Mr. C. S. Bayley.

Mr. G. A. Grierson, Officiating Magistrate and Collector, Gya, is allowed leave for one day, under article 291 of the Civil Service Regulations, in extension of the leave granted to him under the order of the 11th October 1889.

Mr. F. H. Barrow, Magistrate and Collector, is appointed to act, until further orders, as Magistrate and Collector of Gya.

Mr. C. A. Radice, Assistant Magistrate and Collector, Moorshedabad, is transferred to Tipperah.

Mr. B. De, Officiating Magistrate and Collector, Khoolna, is appointed to act, until further orders, in the second grade of Magistrates and Collectors, with effect from the 19th instant, *vice* Mr. D. B. Allen, on furlough.

POLICE.—*The 21st February* 1890.—Mr. A. R. G. Hampton, Officiating Assistant Superintendent of Police, Mymensingh, is transferred to Serajgunge in Pubna.

The 24th February 1890.—Mr. R. F. Guise, District Superintendent of Police, Khoolna, is transferred to Balasore.

The 25th February 1890.—Mr. O. S. Stack, Deputy Inspector-General of Police, is allowed special leave for six months, under article 348 of the Civil Service Regulations, with effect from the 1st April next, or such subsequent date as he may avail himself of it.

Mr. A. H. Giles, District Superintendent of Police, is appointed to act as a Deputy Inspector-General of Police, during the absence, on special leave, of Mr. O. S. Stack, or until further orders.

REGISTRATION.—*The 25th February* 1890.—Munshi Hadi Ali Khan, Special Sub-Registrar, Gya, was on leave from the 9th to the 15th September 1889, both days inclusive, under article 291 of the Civil Service Regulations.

Moulvie Fazalullah, Rural Sub-Registrar, Jehanabad, Gya, acted as Special Sub-Registrar, Gya, from the 13th to the 15th September 1889, both days inclusive, *vice* Munshi Hadi Ali Khan, on leave.

Baboo Bepin Behary Sircar, who was under orders, dated the 20th August 1888, appointed on probation for six months to be Rural Sub-Registrar of Kandi, in the district of Moorshedabad, is confirmed in that appointment.

Moulvie Syed Abdur Raub, Special Sub-Registrar, Burrisal, is appointed to be Special Sub-Registrar of Bogra.

Moulvie Syed Mahomed Hossein, Officiating Special Sub-Registrar of Burrisal, is confirmed in that appointment.

EDUCATION.—*The 25th February* 1890.—Mr. S. C. Hill, Principal, Krishnaghur College, is appointed to act as Inspector of Schools, Behar Circle, during the absence, on furlough, of Dr. C. A. Martin, or until further orders.

Mr. W. Billing, Officiating Professor, Hooghly College, is appointed to act as Principal, Krishnaghur College, during the absence, on deputation, of Mr. S. C. Hill, or until further orders.

MEDICAL.—*The 25th February* 1890.—Apothecary Isaac Burnett, House Surgeon, Mitford Hospital, Dacca, is appointed to act as House Surgeon, Howrah General Hospital, during the absence, on furlough, of Apothecary W. A. Williams, or until further orders, with effect from the afternoon of the 20th January 1890.

Surgeon-Major H. W. Hill, Civil Surgeon of Manbhoom, is allowed leave for three months, under article 291 of the Civil Service Regulations, with effect from the date on which he may be relieved.

The following notifications are republished from the *Assam Gazette*:—

No. 965*G.*—*The 8th February* 1890.—In consequence of the return to duty of Mr. R. Y. Pope, C.S., Assistant Commissioner, first grade, the following Assistant Commissioners reverted to the grades of Assistant Commissioners noted against their names, with effect from the 7th January 1890:—

Mr. W. Tennon, C.S., to second grade. | Mr. W. H. Cossins, C.S., to third grade.

No. 1121*G.*—*The 14th February* 1890.—Mr. J. T. Rivett-Carnac, Officiating Commandant, Military Police, Garo Hills Battalion, and Mr. L. St. J. Brodrick, Assistant Superintendent of Police, Naga Hills, are posted for duty with the Surma Valley Military Police Battalion.

No. 1122*G.*—Mr. S. N. Walker, Assistant Superintendent of Police, whose services were placed at the disposal of the Chief Commissioner in Home Department Notification No. 69, dated the 22nd January 1890, is posted for duty with the Surma Valley Military Police Battalion.

No. 877*R.*—*The 13th February* 1890.—The Chief Commissioner invests Mr. W. Tennon, C.S., Assistant Commissioner, with the powers of a Collector under Act X of 1870 (an Act for the acquisition of land for public purposes), to be exercised within the district of Sylhet.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

REVENUE DEPARTMENT—(FORESTS).

NOTIFICATION.

The 18th February, 1890.—The following temporary promotions are ordered with effect from the 30th December, 1889:—

Mr. G. A. Richardson, Deputy Conservator of Forests, third grade, to officiate as Deputy Conservator of Forests, second grade.

Mr. C. A. G. Lillingston, Deputy Conservator of Forests, fourth grade, to officiate as Deputy Conservator of Forests, third grade.

Mr. C. G. Rogers, Assistant Conservator of Forests, first grade, to officiate as Deputy Conservator of Forests, fourth grade.

Mr. H. D. D. French, Assistant Conservator of Forests, second grade, to officiate as Assistant Conservator of Forests, first grade.

P. NOLAN,
Secretary to the Govt. of Bengal.

REVENUE DEPARTMENT—(OPIUM).

NOTIFICATION.

The 18th February, 1890.—Mr. P. J. Luard, Sub-Deputy Opium Agent, Benares Agency, is allowed furlough for six months, under article 371 of the Civil Service Regulations, with effect from the 12th April, 1890, or any subsequent date from which he may avail himself of it.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 18th February, 1890.—Mr. W. H. T. Howey, Assistant Sub-Deputy Opium Agent, Benares Agency, is allowed leave on private affairs for six months, under article 370 of the Civil Service Regulations, with effect from the 10th April, 1890, or any subsequent date from which he may avail himself of it.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 25th February, 1890.—With reference to the Government notification, dated the 11th December, 1889, published at page 1036, Part I of the *Calcutta Gazette* of the 18th idem, Baboo Kali Sunker Sen is hereby appointed, under rule 1, chapter VI of the rules made by Government under the Bengal Tenancy Act, to be Settlement Officer of Pergunnah Serail in the district of Tipperah.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 25th February, 1890.—With reference to the Government notifications dated the 14th January, 1890, under section 3 of Act V (B.C.) of 1875, regarding the survey of certain lands in the districts of Cuttack and Pooree, the Lieutenant-Governor is pleased to appoint the following officers to be Assistant Superintendents of Survey, under section 4 of the same Act, for the purpose of carrying out such survey :—

Mr. W. H. Paterson.	Mr. R. C. D. Ewing.
„ R. B. Smart.	„ C. S. Kraal.

P. NOLAN,
Secretary to the Govt. of Bengal.

NOTIFICATION.

The 19th February, 1890.—The following Resolution of the Government of India, in the Military Department, regarding the formation of Volunteer Reserves, is published for general information.

P. NOLAN,
Secretary to the Govt. of Bengal.

GOVERNMENT OF INDIA.

MILITARY DEPARTMENT.

Extract from the Proceedings of the Government of India, in the Military Department,—(No. 541-B, under date Fort William, the 12th February 1890).

READ the undermentioned papers :—

Letter from North-Western Provinces Government, No. 862-III—4542, dated 27th November 1884, and enclosures.
Letter to North-Western Provinces Government, No. 586-E, dated 13th March 1885.
Letter to Madras Government and others, No. 587-E, dated 13th March 1885.
Letter from Chief Commissioner, Burma, No. 269-21-V, dated 13th August 1885, and enclosures.
Letter from Bombay Government, No. 4605, dated 26th August 1885, and enclosures.
Letter to Bombay Government No. 212-E, dated 22nd September 1885.
Letter from Bengal Government, No. 1117, dated 9th December 1885, and enclosures.
Letter from Bengal Government, No. 1118, dated 9th December 1885, and enclosures.
Letter from Adjutant-General in India, No. 1161-D, dated 29th March 1889.
Letter to Bombay Government, No. 1131-B, dated 6th May 1887.
Letter to Bengal Government, No. 1132-B, dated 6th May 1887.
Letter to Bengal Government, No. 1133-B, dated 6th May 1887.
Letter to Bombay Government, No. 1134-B, dated 6th May 1887.
Letter to Chief Commissioner, Burma, No. 263-B, dated 31st January 1888.
Letter from Punjab Government, No. 145, dated 2nd August 1888, and enclosures.
Letter to Punjab Government, No. 1969-B, dated 15th August 1888.
Letter to Madras Government, No. 1994-B, dated 18th July 1888.
Letter from Madras Government, No 4493, dated 4th July 1888, and enclosures.
Letter to Madras Government, No. 1564-B, dated 19th July 1888.
Letter to Madras Government, No. 2035-B, dated 24th September 1888.
Letter to Bombay Government, No. 799-B, dated 20th March 1889.
Letter to Bengal Government, No. 800-B, dated 20th March 1889.
Letter to Chief Commissioner, Burma, No. 801-B, dated 20th March 1889.
Letter from Chief Commissioner, Burma, No. 156-8-V, dated 5th April 1889, and enclosures.
Letter to Chief Commissioner, Burma, No. 1091-B, dated 29th April 1889.
Letter to Madras Government, No. 2149-B, dated 26th August 1889.
Letter to Punjab Government, No. 2150-B, dated 26th August 1889.
Letter to Bengal and Bombay Governments, No. 2151-B, dated 26th August 1889.
Letter from Bengal Government, No. 85-TG, dated 23rd October 1889, and enclosures.

Letter to Bengal Government, No. 2791-B, dated 19th November 1889.
Letter from Bombay Government, No. 3573, dated 21st November 1889, and enclosures.
Letter from Madras Government. No. 8298, dated 29th November 1889, and enclosures.

OBSERVATIONS.—In April 1885 sanction was given to the formation of volunteer reserves in the North-Western Provinces and Local Governments were asked to submit proposals for the organization of similar forces in their respective provinces. In May 1887 the proposals of the Bengal Government for raising volunteer reserves in Bengal, and those of the Bombay Government for the formation of volunteer reserves in Bombay and in connection with the Bombay, Baroda, and Central India Railway Volunteer Corps, were approved. In the beginning of 1888 sanction was also given to the organization of volunteer reserves in Burma, and in September 1888 to the formation of volunteer reserves in the Madras Presidency In September 1888 the Punjab Government reported that steps were being taken to ascertain the number of persons in the province who were fit to be volunteers and the proportion of these already enlisted in the volunteer or reserve forces. Subsequently Local Governments were requested to furnish, for the information of the Government of India, reports showing the progress made. The reports which have been received show that reservists in the following numbers have been enrolled in the various provinces:—

Bengal	Calcutta	462	
	Bhagalpur	20	(a)
	Muzaffarpur	30	(a)
N.-W. Provinces	Allahabad	180	
	Cawnpore	80	(a)
	Benares	26	
	Oudh Volunteer Reserve Corps	98	
	Mussoorie ditto	150	
	Rohilkhand ditto	38	
	Dehra Dun Mounted Volunteer Reserve Corps	40	
Punjab	...	500	(a)
Madras	Madras City	248	
	Kistna District	81	
	Bellary do	54	
	Coorg and Mysore	5	
Burma	Upper Burma	103	
	Arracan Division	36	
	Tennasserim Division	38	
	Irrawaddy Division	69	
	Total	2,258	

(a) These are said to be expected to join.

RESOLUTION.—The Governor-General in Council observes with satisfaction the progress made in this important matter and desires to record the acknowledgments of the Government of India to the Local Governments and Administrations and to the volunteer corps concerned for their efforts in furthering the volunteer reserve movement. From a comparison, however, of the number of available men in the various towns and districts of India with the numbers already enrolled as volunteers or reservists, it is evident that the volunteer reserve force might be considerably augmented, and His Excellency in Council trusts that Local Governments and Administrations will give their earnest attention to this matter and endeavour to increase existing volunteer reserve corps and companies and to raise new corps and companies where none at present exist. His Excellency in Council also desires that local Governments and Administrations will impress on the civil officers under their orders and on officers commanding volunteer corps the necessity for taking a personal interest in the movement, as it is one to which the Government of India attach great importance.

ORDER.—Ordered that a copy of this Resolution be communicated to the Secretary to the Government of $\frac{\text{Madras}}{\text{Bombay}}$, Military Department; the Secretary to the Government of Bengal, General Department; the Secretary to the Government of the North-Western Provinces and Oudh, General Department; the Secretary to the Government of the Punjab, Civil Department; the Chief Commissioners of Burma, Assam, and the Central Provinces, and the Adjutant-General in India.

DECLARATION.

The 21st February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for the construction of the proposed central distillery at Jessore, in the village of Bijpara, pergunnah Emadpore, zillah Jessore, it is hereby declared that for the above purpose a piece of land in five plots, measuring, more or less, 6 bighas 14 cottahs and 10 chittacks of standard measurement, within the boundaries given below, is required within the aforesaid village of Bijpara—

Plot No. 1 —Bounded on the North by Binode Bihari Shaha's land; East by the old tank; South by Binode Bihari Shaha's land; and West by the old distillery land.

Plot No. 2.—Bounded on the North by the old distillery land and Binode Bihari Shaha's land; East by an old tank; South by Binode Bihari Shaha's land; and West by Mathura Nath Basu's land.

Plot No. 3 —Bounded on the North by Mathura Nath Basu's land; East by the old distillery land and Binode Bihari Shaha's land; South by Mathura Nath Basu's land; and West by Mathura Nath Basu's land.

Plot No 4.—*Old tank.*—Bounded on the North by Baboo Umes Chandra Ghosh's land; East by Mathura Nath Basu's land; South by Binode Bihari Shaha's land; and West by Binode Bihari Shaha's land.

Plot No. 5.—*Old distillery land.*—Bounded on the North by Baboo Umes Chandra Ghosh's land; East by Binode Bihari Shaha's land; South by Binode Bihari Shaha's land; and West by Mathura Nath Basu's land.

A plan of the required land may be inspected at the Collector's office.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

DECLARATION.

The 22nd February 1890.—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken by Government at the public expense for a public purpose, viz., for construction of a building for Sudder distillery at Beerbhoom, in the village of Hatzanbazar, pergunnah Khatanga, zillah Beerbhoom, it is hereby declared that for the above purpose a piece of land measuring, more or less, 4 bighas of standard measurement, bounded on the North by Poorana Sonatoree; and on the South, East, and West by the lands belonging to Baboo Jagendra Chandra Bose, is required within the aforesaid village of Hatzanbazar.

A plan of the land required to be taken up may be inspected by the parties interested in the office of the Collector of Beerbhoom.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

JUDICIAL DEPARTMENT.

No. 168A.

The 20th February 1890.—Under the authority vested in him by the final clause of section 357 of the Code of Criminal Procedure, Act X of 1882, the Lieutenant-Governor empowers Baboo Abhilash Chandra Mukerjee, Officiating Deputy Magistrate and Deputy Collector, Rajshahye, to take down evidence in criminal cases in the English language.

The 21st February 1890.—The following gentlemen are appointed to be Honorary Magistrates for the Sudder Bench of Chittagong, and are vested with the powers of a Magistrate of the third class:—

Baboo Umesh Chandra Sen, Assistant Surgeon.
„ Umesh Chandra Sen, Zemindar.
„ Mohendra Lal Das, B.L.
Moulvie Raizuddin, B.L.
Munshi Khoirati Meah.
Haji Abdool Maloom.
Rev. J. A. DeCruze.

The 22nd February 1890 —In the notification of the 15th instant, appointing Baboo Gopal Chunder Mookerjee, B.L., to act as a Munsif in the district of Gya, to be ordinarily stationed at the Sudder station, during the absence, on deputation, of Baboo Ananta Ram Ghose, or until further orders, *for* Baboo Gopal Chunder Mookerjee *read* Baboo Gopal Chunder Chatterjee.

The 24th February 1890.—Baboo Satkari Haldar, B.L., Officiating Munsif of Alipore, in the district of the 24-Pergunnahs, is appointed to act as a Munsif in the district of Moorshedabad, to be ordinarily stationed at Kandi, during the absence, on deputation, of Baboo Chandra Nath Ghose, or until further orders.

The 25th February 1890.—Baboo Nogendra Nath Dhur, substantive *pro tempore* Munsif of Moradnugger, in the district of Tipperah, on leave, is appointed to be a substantive *pro tempore* Munsif in the district of Dacca, to be ordinarily stationed at the Sudder station of that district.

Baboo Nikunja Behari Roy, Officiating Munsif of Burrisal, in the district of Backergunge, is appointed to be a substantive *pro tempore* Munsif in the district of Tipperah, to be ordinarily stationed at Moradnugger, but to continue in his present appointment, during the absence, on deputation, of Baboo Joy Gopal Singha, or until further orders.

Baboo Soshi Bhusan Sen, B.L., is appointed to act as a Munsif in the district of Tipperah, to be ordinarily stationed at Moradnugger, during the absence, on deputation, of Baboo Nikunja Behari Roy, or until further orders.

Baboo Chandra Nath Ghose, Munsif of Kandi, in the district of Moorshedabad, now on deputation at Azimgunge, is vested temporarily with the powers of a Judge of a Court of Small Causes for the trial of suits cognizable by such a Court up to the value of Rs. 50 within the local limits of the Azimgunge Munsifi.

In supersession of the order of the 5th instant, Baboo Janoki Nath Dutt, Munsif of Serampore, in the district of Hooghly, is appointed to be a Munsif in the district of Burdwan, to be ordinarily stationed at the Sudder station.

Baboo Janoki Nath Dutt is vested with the powers of a Judge of a Court of Small Causes for the trial of suits cognizable by such a Court up to the value of Rs. 50, within the local limits of the Burdwan Munsifi.

Baboo Sham Kishore Bose, Munsif of Burdwan, on leave, is appointed to be a Munsif in the district of Rajshahye, to be ordinarily stationed at Seebgunge.

Baboo Sham Kishore Bose is vested with the powers of a Judge of a Court of Small Causes for the trial of suits cognizable by such a Court up to the value of Rs. 50 within the local limits of the Seebgunge Munsifi.

Baboo Prosunno Kumar Gupta, B.L., is appointed to act as a Munsif in the district of Rajshahye, to be ordinarily stationed at Seebgunge, during the absence, on leave, of Baboo Sham Kishore Bose, or until further orders.

Baboo Hari Narain Roy, Munsif of Seebgunge, in the district of Rajshahye, on furlough, is appointed to be a Munsif in the district of Hooghly, to be ordinarily stationed at Jehanabad.

Baboo Latu Behari Bose, Officiating Munsif of Maldah, in the district of Rajshahye, is appointed to act as a Munsif in the district of Hooghly, to be ordinarily stationed at Jehanabad, during the absence, on furlough, of Baboo Hari Narain Roy, or until further orders.

Baboo Jogendra Nath Mookherjee, Munsif of Jehanabad, in the district of Hooghly, is appointed to be a Munsif in the same district, to be ordinarily stationed at Serampore.

Baboo Kedar Nath Chatterjee, Subordinate Judge, Beerbhoom, is transferred temporarily to Bankoorah.

Moulvie Mahmud-ul-Nabi, Deputy Magistrate and Deputy Collector, Lalbagh, Moorshedabad, is vested with the power to try summarily the offences mentioned in section 260 of the Code of Criminal Procedure.

Baboo Jagan Nath Sahoy, Officiating Munsif of Lohardugga, is vested with the powers of a Magistrate of the third class.

Moulvie Fuzlul Kareem, B.L., is appointed to act as a Munsif in the district of Chota Nagpore, to be ordinarily stationed at Ranchi, during the absence, on leave, of Syed Abdul Aziz, or until further orders.

Baboo Bishnu Pada Chatterjee, M.A., B.L, is appointed to act as a Munsif in the district of Mymensingh, to be ordinarily stationed at Netrokona, during the absence, on leave, of Baboo Akhoy Kumar Sen, or until further orders.

GRANT OF LEAVE TO MUNSIFS.—*The 19th February* 1890.—Baboo Kali Nath Dhar, Munsif of Azimgunge, in the district of Moorshedabad, is allowed leave for three months, under article 369 of the Civil Service Regulations, with effect from the 3rd March 1890, or from the date on which he may be relieved.

The 20th February 1890.—Syed Abdul Aziz, Munsif of Ranchi, in Chota Nagpore, is allowed leave for thirty-three days, viz., one month under articles 307 and 309 of the Civil Service Regulations, and the remaining period under article 306 (*b*) of the same Regulations, with effect from the date on which he may be relieved.

The 21st February 1890.—Baboo Akhoy Kumar Sen, Munsif of Netrokona, in the district of Mymensingh, is allowed leave for two months and sixteen days, viz., fifteen days under article 309 of the Civil Service Regulations, and the remaining period under article 306 (*b*) of the same Regulations, with effect from the 2nd March 1890, or from the date on which he may be relieved.

Baboo Raj Narayan Chuckerbutty, Munsif of Cutwa, in the district of Burdwan, is allowed leave for twenty days, under article 306 (*b*) of the Civil Service Regulations, in extension of the leave granted to him on 21st December 1889.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT,—BENGAL.

ESTABLISHMENTS.

The 25th February 1890.

No. 58.—Adverting to Notification No. 28, dated the 29th ultimo, Mr. H. B. Taylor, Executive Engineer, temporary rank, is appointed to officiate as Under-Secretary to this Government in the Railway Branch, with effect from the forenoon of the 24th instant.

IRRIGATION.

The 25th February 1890.

No. 59.—*Declaration.*—Whereas it appears to the Lieutenant-Governor of Bengal that land is required to be taken up by Government at the public expense for a public purpose, viz., for the reconstruction of the Rampal Embankment cut, it is hereby declared that for the above purpose two pieces of land on both sides of the cut measuring, more or less, 2 bighas 15 cottahs and 15 chittacks of standard measurement, in the village of Rampal, pergunnah Kumarprotab, district Moorshedabad, is required.

This declaration is made, under the provisions of section 6 of Act X of 1870, to all whom it may concern.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

RAILWAY.

The 24th February 1890.

No. 56.—*Corrigendum.*—For "Bengal Northern Railway" in Declaration No. 48, of the 17th February 1890, published at page 145, Part I of the *Calcutta Gazette* of the 19th February 1890, read "Bengal Nagpur Railway."

No. 57.—It is hereby notified, under section 4 of Act X of 1870, to all whom it may concern, that a survey for a line of railway is about to be made from Sini station on the Bengal Nagpur Railway in the district of Singbhoom to Howrah, passing near the following places:—

In the Singbhoom district.

Goomharia.	Moholia.
Jugsoli.	Ghatsila.
Domjori.	Narsingurh.

Chakulia.

In the Midnapore district.

Ektal.	Soosooma.
Gopalpoor.	Midnapore.
Jhargoon.	Boli Chuk.
Dhangoram.	Punch Kura.

Kola Ghat.

In the Howrah district.

Bagnan.	Baoria.
Moiskrika Ghât.	Rajgung Haut.
Rajapoor Haut.	Echapoor.

Howrah.

This declaration is made in supersession of this Department's Declaration No. 52 of the 18th February 1890.

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT,—(MARINE).

NOTIFICATION No. 45Mne.

The 20th February 1890.—The following letter No. 698A., dated the 12th February 1890, from the Government of Bombay, regarding the removal of quarantine at Aden, Perim, and the Somali Coast against arrivals from the Turkish ports of the Persian Gulf, is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

No. 698A., dated Bombay Castle, the 12th February 1890.

From—J. DEC. ATKINS, ESQ., C.S., Acting Under-Secy. to the Govt. of Bombay, General Department,

To—The Secretary to the Government of Bengal, Calcutta.

IN continuation of my letter No. 3583, dated 31st August 1889, I am directed to state that, under instructions from the Government of India, quarantine restrictions at Aden, Perim, and the Somali Coast against arrivals from the Turkish ports of the Persian Gulf have been withdrawn.

NOTIFICATION No. 48Mne.

The 25th February 1890.—The Lieutenant-Governor is pleased to appoint the gentleman named below to be a member of the Committee appointed under Resolution No. 461Mne., dated the 18th February 1890, published in the Supplement to the last issue of the *Calcutta Gazette*, to consider and advise on the arrangements that should be adopted on the opening of the Kidderpore Docks—

Mr. G. Irving ... ...
Representing the Calcutta Trades' Association.

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal.

[First Publication.]

NOTIFICATION No. 46Mne.

The 25th February 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Govt. of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE.)

NOTICE TO MARINERS—(No. 23).

AUSTRALIA—EAST COAST.

INNER ROUTE.

Sunken rock and bank eastward of Claremont No. X (Chapman) island; and non-existence of rock awash south-eastward of Young island.

THE British Admiralty has given notice (No. 31 of 1890) that the following information has been received, relating to dangers found in the Inner Route, east coast of Australia, the result of recent examinations by Lieutenant and Commander G. C. Frederick, H.M.'s Surveying Vessel *Dart*:—

(1) A sunken rock, composed of coral, with a depth of 5 feet on it at low water, is situated with Claremont No. X (Chapman) island, bearing W.S.W., distant $1\frac{9}{10}$ miles.
Position: lat. 12° 53′ S., long. 143° 39′ 15″ E.

(2) A bank, with several patches of $2\frac{1}{2}$ fathoms near its western edge, extending thence more than a mile to the eastward, with patches of 4 and 5 fathoms on it, lies between the above rock and Claremont No. X island.
From the shoalest part of this bank Claremont No. X island bears W. by S., distant 8 cables.

(3) A careful search was made for the rock awash at low water, marked on the charts in a position bearing S.E., distant $1\frac{5}{10}$ miles from Young island. Depths of 12 to 14 fathoms, and a level bottom, were found all round and upon the assigned position of this rock; and at low water, and under favourable circumstances, no indications of shoal water were observed in the locality.

This rock has consequently been expunged from the Admiralty charts.
Position: lat. 12° 8′ 30″ S, long 143° 14′ E.

(*Variation* 5° *Easterly in* 1890.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th February* 1890.

[First Publication.]

NOTIFICATION No. 47Mne.

The 25th February 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Govt of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 24).

AFRICA—EAST COAST.

GULF OF ADEN.

Permanent light vessel, Aden harbour, replaced in position.

IN continuation of Notice to Mariners, No. 109, dated the 12th November 1889, issued by this office, the British Admiralty has given notice (No. 35 of 1890) that on 15th February 1890 the provisional light-vessel will be replaced by the permanent light-vessel.

The light will be (as previously) a *flashing* white light, showing a flash *every minute*, and elevated 39 feet above the sea.

The light-vessel, moored in 18 feet at low water, is painted red, but will not carry a red ball at the masthead, nor hoist a red flag during the day.

By direction of the Government of Bengal,

EATON W. PETLEY,
Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 24th February* 1890.

[Second Publication.]

NOTIFICATION No. 41Mne.

The 17th February 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Government of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 21).

BAY OF BENGAL.

BURMA COAST.

Regarding Savage island light; and a white light on Fakir Point.

IN continuation of Notice to Mariners, Nos. 17 and 18, respectively dated the 4th February 1890, information has been received from the Port Officer, Rangoon, that the transferring of the light on Savage island to the temporary structure having been completed, that light will be exhibited as before. A white light will also be shewn from Fakir Point to guide vessels leaving or entering the port at night.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 15th February* 1890.

[Second Publication.]

NOTIFICATION No. 42Mne.

The 17th February 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secretary to the Government of Bengal.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT,—(MARINE).

NOTICE TO MARINERS (No. 22).

BAY OF BENGAL.

ORISSA COAST.

Inner bar buoy replaced in position.

IN continuation of Notice to Mariners, No. 2, dated the 4th January 1890, issued by this Office, information has been received from the Collector of Customs, Balasore, that the Inner bar (red) buoy has been replaced in position.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 15th February* 1890.

[Third Publication.]

NOTIFICATION No. 31Mne.

The 4th February 1890.—The following Notice to Mariners is published for general information.

J. M. MCNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 17).

BAY OF BENGAL.

BURMA COAST.

Alteration of light on Savage Island—port of Akyab.

IN continuation of Notice to Mariners, No. 14, dated the 27th January 1890, issued by this Office, information has been received from the Port Officer, Akyab, that the light on Savage island will be obscured from the 27th idem, preparatory to its removal to the temporary structure, and will be re-exhibited after 10 to 15 days. During this period a blue light will be burnt every ½ of an hour.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 4th February* 1890.

[Third Publication.]

NOTIFICATION No. 32Mne.

The 4th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 18).

BAY OF BENGAL.

BURMA COAST.

Blue lights on Savage island discontinued.

IN continuation of Notice to Mariners No. 17, dated the 4th instant, a telegraphic communication has been received from the Port Officer, Akyab, that the blue lights on Savage island were discontinued from the 2nd idem.

By direction of the Government of Bengal,

OLIVER LASH, B.P.,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 4th February* 1890.

[Third Publication]

NOTIFICATION No. 38Mne.

The 11th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Secy. to the Govt of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT,—(MARINE).

NOTICE TO MARINERS (No. 19).

CHINA SEA.

SINGAPORE, WESTERN APPROACH—SALAT SINKI.

Bell buoy withdrawn; and a light-vessel moored on Ajax shoal.

THE British Admiralty has given notice (No. 23 of 1890) that on 1st February 1890 a light-vessel will be moored on Ajax shoal, west side of Salat Sinki, western approach to New harbour, Singapore:—

The light will be a *flashing* white light, showing a *flash every thirty seconds*; it will be elevated 38 feet above the sea, and should be visible in clear weather from a distance of 10 miles.

The light-vessel will be painted yellow, with the word *Ajax* in white letters on a black ground on her sides. She will carry a caged ball, painted red, at the masthead, as a day mark.

Position, lat. 1° 13′ 55″ N., long 103° 40′ 20″ E.

Also, that on the same date, the Bell buoy now marking Ajax shoal will be withdrawn.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 10th February* 1890.

[Third Publication.]

NOTIFICATION No. 39Mne.

The 11th February 1890.—The following Notice to Mariners is published for general information.

J. M. McNEILE, *Col.*, R.E.,
Secy. to the Govt. of Bengal, P. W. Dept.

GOVERNMENT OF BENGAL, PUBLIC WORKS DEPARTMENT—(MARINE).

NOTICE TO MARINERS—(No. 20).

BAY OF BENGAL.

CHITTAGONG COAST.

Spar buoy replaced temporarily.

INFORMATION has been received from the Port Officer, Chittagong, that the Spar buoy referred to in Notice to Mariners No. 28, dated 18th March 1889, having sunk, a second class iron buoy has been laid down off the western edge of the sand in about 6½ fathoms low water; lat. 21° 31′ North, long. 91° 39′ East: Chart No. 859.

By direction of the Government of Bengal,

OLIVER LASH,
for Port Officer of Calcutta.

PORT OFFICE, CALCUTTA, *the 10th February* 1890.

JAIL DEPARTMENT.

No. 1701, *dated the* 20*th February* 1890.—Surgeon W. H. B. Robinson made over charge of the Jessore Jail to Assistant Surgeon Behari Lal Pal on the forenoon of the 12th February 1890.

A. D LAWMORE,
Offg. Inspr.-Genl. of Jails, Bengal.

CIVIL MEDICAL DEPARTMENT, BENGAL.

No. 1757.—*The* 17*th February* 1890.—Assistant Surgeon Hari Mohun Sen was employed on the famine relief works at Angool, in the Cuttack district, from the forenoon of 15th August to afternoon of 30th November 1889.

No. 2034.—*The* 24*th February* 1890.—Assistant Surgeon Kali Prosanno Chowdry, in medical charge of the charitable dispensary at Burdwan, is allowed leave for three months, under article 369 of the Civil Service Regulations.

No. 2036.—*The* 24*th February* 1890.—Assistant Surgeon Kallee Prosono Ghosal is appointed to have temporary medical charge of the charitable dispensary at Burdwan, during the absence, on leave, of Assistant Surgeon Kali Prosanno Chowdry, or until further orders.

A. HILSON, M.D.,
Inspector-General of Civil Hospitals, Bengal.

HIGH COURT NOTICE.

CIRCULAR ORDER ISSUED BY AUTHORITY OF THE HIGH COURT OF JUDICATURE AT FORT WILLIAM IN BENGAL.

CRIMINAL.

No. 1, *dated the* 24*th January* 1890.

For Rule 39, Clauses (*a*), (*b*), (*c*), (*cc*), (*ccc*), (*d*), (*e*), (*f*), (*g*), (*h*), (*hh*) (*i*), (*j*), and foot-notes, Chapter VI, pages 135 to 139, Criminal Rules and Orders, substitute the following:—

39.[1] [*Charges for Copies—C. O. No.* 1 *of* 24*th January* 1890]—(*a*) In all Criminal Courts a uniform charge shall be made for the preparation of copies, whether certified or uncertified, at the rate of 3 annas per folio. This term, it is to be carefully explained to all subordinate officers, merely denominates a certain quantity of manuscript; the folio to consist of 150 words English or of 300 words Vernacular, 4 figures counting as one word.

(*b*) This charge shall be levied by means of an impressed stamp of 3 annas[2] on each sheet of paper corresponding with the folio to be provided by the applicant for a copy. Each of these sheets shall contain a folio, that is, 150 words English or 300 words Vernacular. As there are 25 lines in each sheet, no line shall contain more than 6 words English or 12 words Vernacular.

(*c*) All copies, whether certified or uncertified, must, before issue, be examined by a salaried officer.[3] The copies themselves will, in all cases, be made by Section-writers, who will be remunerated at the rate of 2 annas per folio.

(*d*) Uncertified copies may be converted into certified copies upon the application of the person to whom they have been granted, and upon his filing with such application the necessary 8-anna Court-fee stamps required by law.

(*e*) Certified copy must be "certified to be a true copy," must bear the seal of the Court, and must be signed in full, if not by the Presiding Officer, then by the officer hereinafter named, viz.:—

At the head-quarters of a district—

All certified copies by the Head Clerk of the Court of the District Magistrate;

In Courts at Sub-divisions—

All certified copies by the Head Clerk of the Court of the Sub-divisional Magistrate.

In every case the certifying officer will append to his signature the words "authorised under Section 76, Act I of 1872."

[1] This rule takes effect from the 1st of April 1890.

[2] Till such stamps are available, the sheets now in use for copies, each bearing an impressed (non-judicial) stamp of 4 annas, will, after they have been overprinted with the words "3 annas" in English and in the Vernacular, be sold for 3 annas per sheet.

[3] The duty of examining copies should, as a rule, be entrusted to the Comparing or Examining Clerks, or if there none in the office, to the Head Clerk or Sheristadar. The copyists must not be allowed to examine for each other. Uncertified copies should only be marked as "examined" and initialled by the Examiner.

The words

Certified to be a true copy

authorised under Section 76, Act I of 1872.

may be impressed by means of a stamp.

(*f*) One-third of the charge of 3 annas per folio, levied by means of the impressed stamp, represents the payment to Government on account of the salary of Examiners, cost of paper, &c., the remaining two-thirds will represent the earnings of the Section-writers, whose accounts will be made up monthly, and the amount due to each paid out of contingencies.[1] These payments must be checked at the time with the upper part of each stamp, which, when the copy is ready, must be torn off each sheet, along the perforated line, and then endorsed with the copyist's name, and kept till the end of the month. Care must be taken to see that nothing in excess of two-thirds of the amount realized in stamps is paid away.

(*g*) To prevent the risk of stamped slips being used more than once, the Officer passing the copyist's account will, after checking it as directed, tear the slips to pieces and cause them to be burnt in his presence. A certificate that this has been done must be attached to the contingent bill on which the copyists' fees are drawn.

(*h*) To protect the interests of the Government, care must be taken to see that all copies issued from the Courts are prepared on the prescribed stamp paper; they must be written on one side of the sheet only, and must not contain more than the authorised number of words. On the other hand, care must be taken to see that applicants are not imposed upon by the copyists spreading their writing over a larger number of sheets than is necessary. By insisting on the number of lines in each sheet being uniform, control may easily be exercised in this matter, the number of words in a few of the lines in each folio being checked. The business of a copyist is (like most other occupations) one calling for skill and greatly dependent for its successful practice on experience; copyists, therefore, must possess or acquire skill in their business, or they ought not to be retained. Copyists who fail to do their work satisfactorily must be removed.

(*i*) When an applicant requires his copies to be furnished on the day of application, an extra fee of one rupee (or, if the copies exceed four folios, of 4 annas for each folio)[2] shall be charged on all copies so furnished, to be levied from him by a Court-fee stamp, which should be affixed to the application for the copy and be entered in the Register for Court-fee stamps. Care, however, is to be taken that other applicants for copies do not materially suffer by the arrangement. If the granting of other copies be much delayed by this rule, an extra hand ought to be told off to furnish their copies.

(*j*) Under ordinary circumstances, the time for furnishing the copies required shall not be later than 1 P.M. of the fifth open day after the presentation of the application.

(*k*) When a copy of a judgment, sentence or order is granted, the following particulars must invariably be recorded on the back of the copy itself, and in the form[3] given below for the information of the Appellate Court (Section 12, Act XV of 1877).

Date of application for the copy.....

Date of delivery of the requisite stamped sheets .....

Date on which the copy was ready for delivery[4].....

Date of making over the copy to the applicant .....

(*l*) In the case of certified copies, the Court-fee chargeable under the Court-fees Act should be levied by affixing the necessary stamp to the first folio of the copy.

(*m*) In the case of maps and plans, no general rule can be laid down. In each case a charge will have to be fixed with reference to the difficulty or intricacy of the work to be done. Half will be paid to the copyist, and half credited to Government on account of examination fees and cost of materials.[5]

List of Orders cancelled.

Circular Order (Civil) No. 8, dated 29th June 1875.

Circular Order (Civil) No 30, dated 23rd August 1879, paragraph 4.

Circular Order No. 35, dated the 1st October 1880.

General Letter No. 4, dated the 4th March 1881.

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[1] The copyist is paid by the folio; he would get his pay according to the number of folios copied, whether the copies are subsequently taken out or not.—(H. C. No. 2168, 1881.)

[2] This is a fee for credit to Government, and no part of it is payable to the copyists. Expedition fees should be shown in column 5 of Annual Statement I, Part IV.

[3] This form is printed on the reverse of the stamped sheets now in use for copies.

[4] Compare IX, C. L. R. 293, which is to be strictly followed—(H. C. 1757, 1883.)

[5] In Criminal cases parties are entitled to obtain copies, certified or uncertified, of any portion of the record of trial, this ruling covers such Police-papers as may be made use of as evidence at the trial. As regards other Police-papers, the High Court can pass no orders—(H. C. 1972, 1880, and 1652, 1882.)

Complainants must pay copying fees whenever they want copies. But an accused is, under Section 371 of Act X of 1882, entitled, in cases other than summons cases, to a copy of the judgment absolutely free of charge and on plain paper—(H. C. Proceedings, May 1881.)

As a general rule, copies of exhibits in a Criminal case should certainly not be granted to persons who are strangers to the case. A Magistrate should use his discretion in each case, acting on the general principle that no copies should be given to a stranger without very good cause being shown—(H. C. 82, 1882.)

Circular Order No. 4, dated the 1st June 1881.
Circular Order No. 1, dated the 18th June 1883.
Circular Order No. 10, dated the 21st July 1884, last paragraph.
Circular Order No. 2, dated the 2nd February 1885, paragraph 3.
Rule No. 4, dated the 29th June 1886, paragraphs 2 and 3.

CIVIL.

No. 2, dated the 24th January 1890.

For Rule 41, Clauses (*a*), (*b*), (*c*), (*cc*), (*ccc*), (*d*), (*e*), (*f*), (*g*), (*h*), (*hh*), (*i*), (*j*), and foot-notes, Chapter V, pages 291 to 294, Civil Rules and Orders, substitute the following:—

41.[1] [*Charges for Copies—C. O. No. 2 of 24th January* 1890.]—(*a*). In all Civil Courts, a uniform charge shall be made for the preparation of copies, whether certified or uncertified, at the rate of three annas per folio. This term, it is to be carefully explained to all subordinate officers, merely denominates a certain quantity of manuscript; the folio to consist of 150 words English, or of 300 words Vernacular, four figures counting as one word.

(*b*) This charge shall be levied by means of an impressed stamp of 3 annas[2] on each sheet of paper corresponding with the folio to be provided by the applicant for a copy. Each of these sheets shall contain a folio—that is, 150 words English or 300 words Vernacular. As there are 25 lines in each sheet, no line shall contain more than six words English or twelve words Vernacular.

(*c*) All copies, whether certified or uncertified, must, before issue, be examined by a salaried officer.[3] The copies themselves will, in all cases, be made by Section-writers, who will be remunerated at the rate of 2 annas per folio.

(*d*) Uncertified copies may be converted into certified copies upon the application of the person to whom they have been granted, and upon his filing with such application the necessary 8-anna Court-fee stamps required by law.

(*e*) Certified copies must be "certified to be a true copy," must bear the seal of the Court, and must be signed in full, if not by the Presiding Officer, then by the officer hereinafter named, *viz.*—

at the Head-quarters of a District—

in the case of copies of—
Judicial documents not being Wills,—by the Sheristadar;
in the case of copies of—
Other documents including copies of Wills,—by the Head Clerk.

In Courts of Small Causes constituted under Act IX of 1887—

All certified copies,—by the Head Clerk;

in other Courts at out-stations—

All certified copies,—by the Sheristadar.

In every case the certifying Officer will append to his signature the words "authorized under Section 76, Act I of 1872"

The words

Certified to be a true copy

authorized under Section 76, Act I of 1872.

may be impressed by means of a stamp.

(*f*) One-third of the charge of 3 annas per folio, levied by means of the impressed stamp, represents the payment to Government, on account of the salary of Examiners, cost of paper, &c.; the remaining two-thirds will represent the earnings of the Section-writers, whose accounts will be made up monthly, and the amount due to each paid out of contingencies.[4] These payments must be checked at the time with the upper part of each stamp, which, when the copy is ready, must be torn off each sheet, along the perforated line, and then endorsed with the copyist's name, and kept till the end of the month. Care must be taken to see that nothing in excess of two-thirds of the amount realized in stamps is paid away.

(*g*) To prevent the risk of stamped slips being used more than once, the officer passing a copyist's account will, after checking it as directed, tear the slips to pieces and cause them to be burnt in his presence. A certificate that this has been done must be attached to the contingent bill on which the copyists' fees are drawn.

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[1] These Rules take effect from the 1st April 1890.

[2] Till such stamps are available, the sheets now in use for copies, each bearing an impressed (non-judicial) stamp of 4 annas, will, after they have been overprinted with the words "3 annas" in English and in the Vernacular, be sold for 3 annas per sheet.

[3] The duty of examining copies should, as a rule, be entrusted to the Comparing or Examining clerks, or if there are none in the office, to the Head Clerk or Sheristadar. The copyists must not be allowed to examine for each other.
Uncertified copies should only be marked as "examined" and initialled by the Examiner.

[4] The copyist is paid by the folio; he would get his pay according to the number of folios copied, whether the copies are subsequently taken out or not [H. C. No. 2163 (Criminal), 1881.]

(*h*) To protect the interests of the Government, care must be taken to see that all copies issued from the Courts are prepared on the prescribed stamp paper; they must be written on one side of the sheet only, and must not contain more than the authorized number of words. On the other hand, care must be taken to see that applicants are not imposed upon by the copyists spreading their writing over a larger number of sheets than is necessary. By insisting on the number of lines in each sheet being uniform, control may easily be exercised in this matter, the number of words in a few of the lines in each folio being checked. The business of a copyist is (like most other occupations) one calling for skill, and greatly dependent for its successful practice on experience; copyists, therefore, must possess or acquire skill in their business, or they ought not to be retained. Copyists who fail to do their work satisfactorily must be removed.

(*i*) When an applicant requires his copies to be furnished on the day of application, an extra fee of one rupee (or, if the copies exceed four folios, of 4 annas for each folio)[1] shall be charged on all copies so furnished, to be levied from him by a Court-fee stamp, which should be affixed to the application for the copy, and be entered in the Register for Court-fee stamps. Care, however, is to be taken that other applicants for copies do not materially suffer by the arrangement. If the granting of other copies be much delayed by this rule, an extra hand ought to be told off to furnish the copies urgently required.

(*j*) Under ordinary circumstances, the time for furnishing the copies required shall not be later than 1 P. M. of the fifth open day after the presentation of the application.

(*k*) When a copy of a decree, judgment or order is granted, the following particulars must invariably be recorded on the back of the copy itself, and in the form[2] given below, for the information of the Appellate Court (Section 12, Act XV of 1877):—

Date of application for the copy	... ...
Date of delivery of the requisite stamped sheets	... ...
Date on which the copy was ready for delivery	... ...
Date of making over the copy to applicant	... ...

(*l*) In the case of certified copies, the Court-fee chargeable under the Court-fees Act should be levied by affixing the necessary stamp to the first folio of the copy.

(*m*) In the case of maps and plans, no general rule can be laid down. In each case a charge will have to be fixed with reference to the difficulty or intricacy of the work to be done. Half will be paid to the copyists, and half credited to Government on account of examination fees and cost of materials.

List of Orders cancelled.

C. O. No. 8, dated 29th June 1875, paragraph 4.
C. O. No. 30, dated 23rd August 1879, paragraph 4.
C. O. No. 35, dated 1st October 1880.
C. O. No. 14, dated 1st June 1881.
C. O. No. 4, dated 18th June 1883.
C. O. No. 7, dated 21st July 1884, last paragraph.
C. O. No. 4, dated 2nd February 1885, paragraphs 3 and 4.
Rule No. 7, dated 14th May 1886.

[1] This is a fee for credit to Government, and no part of it is payable to the copyists. Expedition fees should be entered in Column 5 of Annual Statement 1, Part III.

[2] This form is printed on the reverse of the stamped sheets now in use for copies.

EDUCATION DEPARTMENT, BENGAL.

Subordinate Educational Service.

The 18th February 1890.—Babu Jagat Bandhu Bhadra, Head Master of the Jessore Zillah School (class IV), is allowed leave of absence for one month, under Article 306(*b*) of the Civil Service Regulations, with effect from the 10th February 1890, or any subsequent date on which he may avail himself of it.

Babu Raj Kumar Das, M.A., Second Master of the Jessore Zillah School (class VI), is appointed to act as Head Master of the same institution, *vice* Babu Jagat Bandhu Bhadra, on leave.

The 20th February 1890.—Babu Gopal Chandra Sarkar, B.A., Second Master of the Pubna Zillah School (class VII), is allowed leave of absence for two weeks, under Article 306(*b*) of the Civil Service Regulations, with effect from the 3rd February 1890.

Babu Dwarka Nath Bagchi, Sub Inspector of Schools under the District Board of Rajshahye (class VII), has been granted by the Board leave of absence for one month, under Article 291 of the Civil Service Regulations, with effect from the date on which he may avail himself of it.

Babu Indra Kumar Chatterjea, Sub-Inspector of Schools under the District Board of Hoogly (class VI), has been granted by the Board leave of absence for one month, under Article 369 of the Civil Service Regulations, in extension of that granted to him under orders of the 17th February 1890.

The 22nd February 1890.—Babu Becharam Ganguli, Sub-Inspector of Schools under the District Board of Rajshahye (class VI), has been granted by the Board leave of absence for three months, under Article 371 of the Civil Service Regulations, with effect from the date on which he is relieved of his acting appointment as Deputy Inspector of Schools, Rajshahye.

A. CROFT, *Director of Public Instruction.*

NOTIFICATIONS OF THE BOARD OF REVENUE.

No. 113B.

NOTICE is hereby given that the Third Sale of Opium, the Provision of 1887-88, will be held at the Government Opium Sale-room, No. 2, Bankshall-street, on Monday the 3rd March 1890, at 11 A.M., and will comprise 4,750 chests, viz.—

	Chests.
Opium manufactured at the Patna Factory	2,250
Ditto at the Ghazeepore Factory	2,500
Total ...	4,750

2*nd*.—The general conditions of the sale now advertised will be the same as usual. The may be ascertained by reference to the Notification issued on the 26th November 1889, and published in the *Government* and *Exchange Gazettes*, or on personal application at the Office of the Boar of Revenue.

3*rd*.—The latest dates for deposit and clearance will be the 8th and 18th March 1890, respectively, that is to say no Bank of Bengal Receipts, Government Promissory Notes, or other public securities that may be tendered for deposit in redemption of Promissory Notes given by purchasers in the sale-room will be received after 1-30 P.M. of Saturday, the 8th March 1890 and no Bank of Bengal Receipts in full payment of lots will be accepted afte 3-30 P.M. of Tuesday, the 18th March 1890.

4*th*.—In addition to the quantity above advertised for sale, the following quantities, more or less, of the Opium manufactured at the Patna and Ghazeepore Factories will be brought to sale in the present year about the dates specified below. The Board of Revenue, however, reserve to themselves the right of altering these dates should circumstances render it expedient to do so :—

DATES.	Manufactured at the Patna Factory, about chests.	Manufactured at the Ghazeepore Factory, about chests.	Total, about chests.
On or about Wednesday, 2nd April 1890.	2,250	2,500	4,750
On or about Thursday, 1st May	2,250	2,500	4,750
On or about Monday, 2nd June	2,250	2,500	4,750
On or about Wednesday, 2nd July	2,250	2,500	4,750
On or about Monday, 4th August	2,250	2,500	4,750
On or about Monday, 1st September	2,250	2,500	4,750
On or about Wednesday, 1st October	2,250	2,500	4,750
On or about Monday, 3rd November	2,250	2,500	4,750
On or about Monday, 1st December	2,250	2,500	4,750
Total	20,250	22,500	42,750

By order of the Board of Revenue, L. P.,

K. G. GUPTA, *Offg. Secretary.*

BOARD OF REVENUE, L. P., *Calcutta, the 28th January* 1890.

No. 804B.

NOTICE is hereby given that the Fourth Sale of Opium, the provision of 1887-88, will be held at the Government Opium Sale-room, No. 2, Bankshall Street, on Wednesday, the 2nd April 1890, at 11 A.M., and will comprise 4,750 chests, viz.—

	Chests.
Opium manufactured at the Patna Factory	2,250
Ditto at the Ghazeepore Factory	2,500
Total ...	4,750

2nd.—The general conditions of the sale now advertised will be the same as usual. They may be ascertained by reference to the Notification issued on the 26th November 1889, and published in the *Government* and *Exchange Gazettes*, or on personal application at the Office of the Board of Revenue.

3rd.—The latest dates for deposit and clearance will be the 7th and 17th April 1890, respectively, that is to say, no Bank of Bengal Receipts, Government Promissory Notes, or other public securities that may be tendered for deposit in redemption of Promissory Notes given by purchasers in the sale-room will be received after 3-30 P.M. of Monday, the 7th April 1890, and no Bank of Bengal Receipts in full payment of lots will be accepted after 3-30 P.M. of Thursday, the 7th April 1890.

4th.—In addition to the quantity above advertised for sale, the following quantities, more or less, of the opium manufactured at the Patna and Ghazeepore Factories will be brought to sale up to December next about the dates specified below. The Board of Revenue, however, reserve to themselves the right of altering these dates should circumstances render it expedient to do so:—

DATES.		Manufactured at the Patna Factory, about chests.	Manufactured at the Ghazeepore Factory, about chests.	Total, about chests.
On or about Thursday, 1st May	1890 ...	2,250	2,500	4,750
On or about Monday, 2nd June	,, ...	2,250	2,500	4,750
On or about Wednesday, 2nd July	,, ...	2,250	2,500	4,750
On or about Monday, 4th August	,, ...	2,250	2,500	4,750
On or about Monday, 1st September	,, ...	2,250	2,500	4,750
On or about Wednesday, 1st October	,, ...	2,250	2,500	4,750
On or about Monday, 3rd November	,, ...	2,250	2,500	4,750
On or about Monday, 1st December	,, ...	2,250	2,500	4,750
TOTAL	...	18,000	20,000	38,000

By order of the Board of Revenue, L. P.,

K. G. GUPTA, *Offg. Secretary.*

BOARD OF REVENUE, L.P., CALCUTTA, *the 25th February* 1890.

Statement shewing the Importation of Salt (private property) in bond and afloat on the River Hooghly, subject to Customs Duty, on the 15th February 1890.

DESCRIPTION OF SALT.	Government golahs.	Private golahs.	Afloat.	Total.
	Mds.	Mds.	Mds.	Mds.
Liverpool Punga	6,61,521		2,53,058	9,14,579
Bombay Kurkutch	24,713			24,713
Arabian and Persian Gulfs Kurkutch and Muscat Rock ...	7,84,136			7,84,136
Aden Kurkutch	2,16,665			2,16,665
Hamburg salt	1,01,457			1,01,457
Total ..	17,88,492		2,53,058	20,41,550

By order of the Board of Revenue, L. P.,

J. SCOBELL ARMSTRONG, *Collector of Customs.*

CUSTOM HOUSE, CALCUTTA, *the 22nd February* 1890.

ELECTION OF MUNICIPAL COMMISSIONERS.

NOTIFICATION.

IT is hereby notified for general information that at a bye-election held under section 27, Act III (B.C.) of 1884, on the 9th instant at English Bazar, in the district of Maldah, the undermentioned gentlemen were elected to be Commissioners of the Municipality at that station.—

Ward No. I.

Baboo Sita Nath Choudhury, *vice* Baboo Gopal Krishna Roy, resigned.

Ward No. IV.

Baboo Kailash Chandra Shaha, *vice* Baboo Krishna Lal Das, deceased.

CHANDRA NARAIN SINGH, *for Offg. Commissioner on tour.*

COMMR.'S OFFICE, BHAGULPORE DIVISION, *the 22nd February* 1890.

NOTIFICATION.

IT is hereby notified for general information that at the election held on Monday, the 10th February 1890, Munshi Sujjad Karim has been elected, under section 27, Act III (B.C.) of 1884, a Commissioner for Ward No. V of the Burdwan Municipality, in the district of Burdwan, *vice* Baboo Bani Nath Banerjee, who ceased to be a member by the operation of section 20 of the Act.

N. S. ALEXANDER, *Commissioner.*

BURDWAN COMMR.'S OFFICE, *the 22nd February* 1890.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 26, 1890.

PART IA.

Orders and Notifications by the Government of India, &c.

[*Reprinted from the "Gazette of India."*]

The following orders, issued by the Government of India in the Home Department, are republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

NOTIFICATIONS—ESTABLISHMENTS.

Calcutta, the 18th February 1890.

No. 107.—Mr. J. R. Hallett is permitted to resign Her Majesty's Bengal Civil Service with effect from the 12th February 1890, or the subsequent date on which he may sail from India.

A. P. MACDONNELL,
Secy. to the Govt. of India.

The 20th February 1890.

No. 112.—Mr. A. P. MacDonnell, C.S.I., Secretary to the Government of India in the Home Department, has obtained furlough for one year, with effect from the 10th March 1890, or the subsequent date on which he may avail himself of it.

J. P. HEWETT,
Under-Secy. to the Govt. of India.

POLICE.

The 20th February 1890.

No. 169.—The services of Mr. F. A. Fullerton, Assistant District Superintendent of Police, Cachar, are replaced at the disposal of the Government of Bengal.

A. P. MACDONNELL.
Secy. to the Govt. of India.

The following orders, issued by the Government of India in the Military Department, are republished for general information.

JOHN EDGAR,
Chief Secy. to the Govt. of Bengal.

Fort William, the 21st February 1890.

FURLOUGH AND LEAVE.

No. 172.—The undermentioned officers are granted furlough out of India:—

Colonel W. Hopkinson, General List, Infantry, Cantonment Magistrate, 1st class, Bengal, (p. a.) for 240 days, under Rule IX of the Regulations of 1868.

VOLUNTEER CORPS.

APPOINTMENTS.

No. 184.—*Cossipore Artillery Volunteers*—

Mr. Stewart McPherson to be Second Lieutenant, *vice* Thomson, promoted.

G. G. O. No. 16 of 1890 is cancelled.

PROMOTION.

No. 185.—*Cossipore Artillery Volunteers*—

Second Lieutenant James Balfour Thomson to be Lieutenant, *vice* Gore-Browne, transferred to the Great Indian Peninsula Railway Volunteer Rifle Corps.

E. H. H. COLLEN,
Secy. to the Govt. of India.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 26, 1890.

PART IB.

ORDERS BY THE LIEUT.-GOVERNOR OF BENGAL.

MUNICIPAL AND LOCAL.

NOTIFICATION.

The 12th February 1890.—It is hereby notified for general information that, in exercise of the power vested in the Local Government by section 351 of Act III (B.C.) of 1884, and on the recommendation of the Commissioners of the Lohardugga Municipality, made at a meeting, the Lieutenant-Governor confirms the bye-laws set forth below, which have been framed by the Commissioners of the said Municipality, under section 350 of the said Act.

I.—For regulating business at meetings.

1. Meetings shall be either ordinary or special.

2. An ordinary general meeting of the Commissioners shall be held on the last Saturday of every month, unless the Chairman for any special reasons shall fix any other day

3. A special meeting may be called at any time by the Chairman or the Vice-Chairman.

4. All such meetings shall be convened by the Chairman, or in his absence by the Vice-Chairman, by notice to be served on each Commissioner not later than three days preceding the date of the meeting.

5. Notices of motions must be sent to the Chairman or Vice-Chairman at least two days before the meeting convened by the Chairman or Vice-Chairman. Notices received too late will be inserted in the list of business of the next succeeding meeting.

6. Meetings shall be held at the office of the Commissioners or at such place as the Commissioners in a general meeting may from time to time determine.

7. A notice-book shall be kept by the Chairman, in which all notices shall be entered. All such notices shall be dated and numbered as received.

8. Every notice convening a meeting shall be accompanied by a list of the business to be brought forward at such meeting, signed by the Chairman or Vice-Chairman.

9. At ordinary meetings the business shall be transacted in the following order, unless the President, with the consent of the majority of Commissioners present, determine otherwise:—

(*a*) The minutes of last ordinary meeting and of any special meeting held since shall be read, and if approved of as correctly entered, shall be confirmed and signed by the Chairman of the meeting.

(*b*) All correspondence of importance from higher authorities.

(*c*) Any business postponed from the last ordinary meeting shall be considered.

(*d*) The business contained in the notice of the meeting prescribed by rule 4 above shall be considered in the order in which it appears in the notice paper, unless the President, with the consent of the majority of the members present, determine otherwise.

10. No business shall be considered or proposition received at any meeting if it does not appear in the list of business, except with the consent of the majority of the Commissioners present.

11. Every motion or amendment duly made must be seconded, and until seconded no discussion on it shall take place.

12. After a motion has been moved and seconded, an amendment may be moved at any stage of the debate thereon.

13. When a motion or an amendment has been declared by the Chairman to be duly carried, no further proposal for amending the motion or amendment can be entertained.

14. Unless not less than two-thirds of the Commissioners consent by signing a requisition, no subject once finally disposed of can be reconsidered within six months.

II.—For regulating the conduct of persons employed by the Commissioners.

15. The Commissioners may fine, suspend or degrade any officer or servant engaged by them for neglect of duty or misconduct. The fine not to exceed one month's pay.

16. The Municipal officers or servants shall be liable to a fine, in addition to a forfeiture of their pay, for absence without leave; the fine not to exceed the amount of their pay for the day or days they are so absent.

17. The Commissioners may grant leave of absence to the officers or servants engaged by them either with or without pay.

18. As to the leave granted to Municipal officers, the Government rules shall apply as far as practicable.

III.—For regulating traffic in the streets.

19. No owner of any cart, carriage, or other vehicle shall allow it to be driven by a driver under 16 years of age.

20. No long bamboos shall be carried through the streets after sunset and before sunrise either by men or carts.

21. No person shall leave or keep any truck, cart or carriage or other vehicle standing on any public road except only when engaged in taking up and setting down passengers or in loading or unloading goods.

22. No person shall make a shop over any public road or drain, or in any way occupy any culvert, bridge or platform which may have been placed over any public drain, except with the permission of the Commissioners.

23. No person shall slaughter animals on or by the side of a public road.

24. No procession accompanied by beat of drum or by a band of music shall be allowed on a public road without the written permission of the Commissioners previously obtained.

25. All owners and drivers of carts laden with bricks or other materials shall be responsible for their being so secured that the contents may not fall on the road.

26. No person shall, without the permission of the Commissioners, take more than ten head of cattle at one time along any of the public roads within the limits of the Municipality, except by such routes as shall be fixed for the purpose from time to time by the Municipal Commissioners.

27. No person shall let loose or allow to be let loose or allow to get loose any diseased or worn-out animals, or use or cause to be used any such animal for the purpose of drawing any cart or other conveyance within municipal limits.

28. No person shall allow any pig to be at large or keep them otherwise than in closed styes.

29. No person shall let off any fire-balloon, firework or firearms in or near the public roads or lanes within the Municipality without the permission of the Commissioners, nor otherwise than as the Commissioners shall direct.

30. No person shall accumulate straw, jute, timber, bricks or any other materials on any public road without the permission of the Commissioners.

31. Any person required by the Act or by any bye-law under it to take out a license shall produce and show his license when required to do so by any person empowered by the Commissioners to make such requisition.

The penalty for the infringement of any one of the bye-laws from Nos. 19 to 31 shall be a fine not exceeding Rs. 20, and for continued infringement after sentence a daily fine not exceeding Rs. 5.

IV.—General bye-laws.

32. No person shall put or cause to be put on any house or other building any spout or other thing intended for the conveyance or discharge of water in such a manner that the water discharged therefrom shall be thrown into or fall upon any public road or thoroughfare.

33. No person shall keep filth, dirt, dung, ashes, bones, dead bodies, rubbish or other matter of a noxious kind on any public road, street or lane, or within close proximity to such public roads or lanes, except for the purpose of immediate removal.

34. No person shall, without the written permission of the Commissioners, set up any obstruction in any drain or water-course, and the Commissioners may order the removal of any such obstruction. (Spreading fishing nets and placing fishing traps in a drain or water-course come under the definition of obstruction.)

35. No person shall deposit or cause to be deposited any carcass of any animal in any place other than those appointed by the Commissioners.

36 No refuse resulting from any business, trade or profession shall be removed by the Municipal Commissioners except on payment for removal at the rate to be fixed by the Commissioners from time to time, and any expense incurred on this account shall be recoverable as a debt due to the Commissioners.

37. The Commissioners may require the owner or occupier of any pit, cesspool or other excavation to fill it up within a fixed time, if it appears to them to be injurious to public health. If such owners or occupiers do not comply with the order or requisition as mentioned above, the Commissioners may, instead of imposing any penalty, fill up the pit, cesspool or excavation at their own cost, to be realized from the owner or occupier under section 360 as a debt due to the Commissioners.

38. When the owners or occupiers of any land have been ordered, under section 200 of the Act, to cleanse any water-course, private tank or pool therein, they may, in addition, be ordered to remove the weeds instead of accumulating them on the slopes or banks of the tank, water-course or pool.

39. The owner or occupier of any part of the bank of any water-course or tank which is used by the public or any section of the community, or of the bank of a public drain or a private drain leading to a public drain, shall keep it free from filth, jungle and weeds; and the Commissioners may give notice, in writing, to the owner of any trees or shrubs overhanging such water-course or tank, and likely to foul the water thereof, to cut or trim the same in such a manner as the Commissioners shall direct. The Commissioners may also give a like notice to the owner of trees or shrubs overhanging any public drain or private drain leading to a public drain, and likely in any way to injure such drains and obstruct the clearing of them, to cut or trim them in such a manner as the Commissioners may think proper.

40. No person suffering from a contagious skin disease shall bathe in any tank used as a public bathing-place

41. No washerman or other person shall wash clothes in any tank or water-course except those which the Commissioners shall set apart for the purpose.

42. No person shall erect or place over a public road any kind of structure or obstruction without the written permission of the Commissioners previously obtained.

43. No person shall, without the permission of the Commissioners, cut sods or grass or remove any earth or grass from any public road or from the margin or slopes of any road or drain.

44. No person shall dig or remove from or deposit earth or any other substance in or make any alterations whatever in any public drain, or throw or place any offensive matter or rubbish on such drains without the permission of the Commissioners.

45. No person shall enlarge or deepen any existing tank or other excavation or dig a new one without the permission of the Commissioners.

46 No person shall quarry kunker, cut timber or grass or damage trees, or remove or damage any property, or deface the blocks on which the names of any road or street are engraved, or remove any boundary marks or pillars being the property of the Commissioners and within municipal limits.

47. No person shall break or cause to be broken any wall, fence, rail or post constructed for the protection of any public well, tank, drain or other excavation.

48. When any person erects any hut or building in contravention of the provision of section 236 and the bye-laws framed under it, the Commissioners shall have power to issue notice on such person to remove the external covering of his hut or building made of inflammable materials within one month, and on his failure to execute the work, the Commissioners shall have power to execute it by their own men or otherwise at their own cost, and recover the same from the owner or occupier of such house or hut as a debt due to the Commissioners.

49. No person desiring to construct a pucca privy shall do so, except with the permission of the Municipal Commissioners and according to the plan approved of by them.

50: No person shall build or cause to be built or keep after prohibition by the Commissioners any tatteo, privy or urinal within 10 feet of any public road or street. In case there is no wall at least 5 feet high between a privy and a public road, the distance from the former to the latter is to be at least 30 feet.

51. No person shall burn or cause to be burnt a corpse, or build or dig or cause to be built or dug a grave in any other place than those set apart or recognized by the Commissioners.

52. No grave once used shall be opened for the burial of another, and no grave shall be dug or built having less than 5 feet depth.

53. No person when burning or causing to be burnt any corpse in any burning ground shall permit the same to remain without being completely reduced to ashes, or shall permit the clothes or other articles connected with the burning of such corpse to remain at or near such burning-ground unless the same be completely reduced to ashes.

The penalty for infringement of any one of the bye-laws from numbers 32 to 53, both inclusive, shall be a fine not exceeding Rs. 20, and for continued infringement a daily fine not exceeding Rs. 5.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 19th February 1890.—Whereas a notification, dated the 24th November 1889, announcing the intention of the Lieutenant-Governor to extend the provisions of the Bengal Vaccination Act V (B.C.) of 1880 to the Tangail Municipality, in the district of Mymensingh, was published at page 261, Part IB of the *Calcutta Gazette* of the 27th idem, and whereas no objection has been raised to the proposal within six weeks from the date of the publication of the notification within the Municipality, it is hereby notified for general information that, in exercise of the power conferred on him by section 1 of the said Act, the Lieutenant-Governor extends the provisions of the Act to the said Municipality.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 19th February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Baboo Puna Lal to be a Commissioner of the Daudnagar Municipality, in the district of Gya, *vice* Baboo Lalji Pershad, resigned.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 19th February 1890.—It is notified for general information that the declaration, dated the 21st November 1887, published at page 282, Part IB of the *Calcutta Gazette* of the 23rd idem, for the acquisition of a plot of land required by the Dacca Municipality for the excavation of new tanks for the water-works of the town, is hereby cancelled.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 22nd February 1890.—It is hereby notified for general information that, in the exercise of the power vested in the Local Government by section 4 of Act XX of 1887, the Lieutenant-Governor has been pleased to declare that the provisions of section 3 of the said Act with respect to wild birds shall apply, so far as regards the rules that may be framed by the Commissioners of the Cuttack Municipality with the approval of Government, to deer, hares and antilope.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 24th February 1890. It is hereby notified for general information that, in the exercise of the power vested in the Local Government by section 221, Act III (B.C.) of 1884, and in accordance with the recommendation of the Commissioners of the Naihati Municipality, made at a meeting, the Lieutenant-Governor sanctions the extension of the provisions of sections 220 to 225, 229, 231, 234, 235, 245 to 251, 254 to 262, 265, 266, 268, 269, 270 with the exception of clause 4, 271, 272, 273 with the exception of clause 4, 274 and 277 of Part VI of the said Act, to the whole of the said municipality except the villages of Bhatpara, Kantalpara, Naihati, and Gorifa, to which the above provisions have already been extended by notification dated 3rd December 1889, published at page 269 of Part IB of the *Calcutta Gazette* of the 4th idem. The Lieutenant-Governor further sanctions the extension of the provisions of sections 237, 238 and 241 clauses 1 and 2, to the whole municipality, except the villages of Bhatpara, Kantalpara, Naihati, and Gorifa, to which the above provisions have already been extended by the aforesaid notification and excepting also the premises occupied by the Eastern Bengal Railway Company for the purposes of the Kanchrapara and Shamnagar railway stations.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 24th February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Baboo Tara Prasanna Ghose to be the Chairman of the Roghunathpore Municipality in the district of Manbhoom, *vice* Baboo Nanda Lall Koondoo, transferred.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 25th February 1890.—It is hereby notified that, under section 19, clause (3) of the Bengal Local Self-Government Act III (B.C.) of 1885, the Lieutenant-Governor is pleased to appoint Moulvi Abdul Haq Khan to be a member of the District Board of Noakhally, in the place of Munshi Amzad Ali, deceased.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 25th February 1890.—It is hereby notified that, under section 27, Act III (B.C.) of 1884, the Lieutenant-Governor is pleased to appoint Baboo Abhilash Chandra Mukerjea to be a Commissioner of the Rampore Beaulcah Municipality, in the district of Rajshahye, *vice* Baboo Preonath Chatterjea who has ceased to be a Commissioner under section 20 of the Act.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 25th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Burdwan Local Board, in the district of Burdwan, under section 25 of Act III (B. C.) of 1885, of Baboo Nalinaksha Bose to be their Chairman.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 25th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Culna Local Board, in the district of Burdwan, under section 25 of Act III (B. C.) of 1885, of Baboo Narendranath Barat to be their Chairman.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 25th February 1890.—It is hereby notified that the Lieutenant-Governor is pleased to approve the election by the members of the Cutwa Local Board, in the district of Burdwan, under section 25 of Act III (B. C.) of 1885, of Baboo Brojendranath Sen to be their Chairman.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

NOTIFICATION.

The 25th February 1890.—It is hereby notified that, under section 19, Act III (B.C) of 1885, the Lieutenant-Governor is pleased to appoint Chaudhuri Mohamed Omur Uddin Ahmed to be a member of the District Board of Rungpore, *vice* Munshi Samiruddin Ahmed, B.L., deceased.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 26, 1890.

PART II.

Advertisements.

[N.B.—Advertisements, Notices, &c., intended for insertion in this part of the Gazette, cannot be received after Noon on Monday.]

LAND SALE NOTICES.

NOTICE is hereby given that the undermentioned plots of the Nizamut lakhiraj State lands situated in the district of Nuddea will be put up to sale at the Collectorate of Nuddea on the 13th March 1890, corresponding with 1st Chyte 1296 B.S.

The purchasers of the plots will be subject to the following conditions :—

I.—The plots will be sold revenue free to the highest bidders above the upset price.

II.—The sale to be subject to existing leases and to the rights conferred by the settlement proceedings and by the laws in force, and purchasers to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the Revenue authorities.

III.—If the amount of the purchase-money do not exceed Rs. 100, the whole amount will be paid down at once.

IV.—If the amount of the purchase-money exceed Rs. 100, one-fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the fifteenth day after the sale, reckoning the day of sale as one, or, if that day be a close holiday, then by noon of the first succeeding office day, the sale to be cancelled (the sum deposited being forfeited to Government), and the estates to be again put up for sale at the risk of the defaulting purchasers after issue of advertisement as in the case of original sale.

V.—The purchasers shall be put in possession on receipt of the orders of the Collector approving of the sales, but such possession shall be liable to be disturbed in case the final confirmation of the Board of Revenue should not be accorded to the proceedings.

Consecutive number of plot.	Name of estate.	Mouzah.	Pergunnah.	Approximate area in bighas.	Annual assessment.	Upset price.	Boundaries.	REMARKS.
				B. K. CH	Rs. A. P.	Rs. A. P.		
1	Aujongachi in Bartoil.	Bahalispara in Bartoil.	Mohamedshahye.	31 7 14	12 0 0	313 5 0	North, east, and south of jote lands of Bagooram Bed and others of Bartoil; west of the confines of mouzah Belghuria.	Mourashi jote of Bunesh Chandra Sarkar of Belgachi and dwelling-house of Gopal Chandra Ghose of Bartoil.
2	Aujongachi ...	Aujongachi ...	Taragooniah	894 1 10	93 0 0	3,936 11 0	West of the dwelling-houses of Chuni Sheikh and Nabin Mandal Ghose and others, ryots of the zemindars of Chitna; north of the nij-jote lands of the aforesaid zemindars; east of the confines of Khairpur; south of the nij jote lands of the aforesaid zemindars.	Mourashi jote of Bunesh Chandra Sarkar of Belgachi.
3	Dak Adda ...	Kulberia ...	Plassey ...	1 4 8	2 1 6	40 0 0	East and north of a public road; south and west of jote lands of Brojo Lal Rai.	Plot No. I, khas Nizamut.
							South of jote lands of Gurudoyal Sinha and Bhikoo Mandal; east and north of jote lands of Puncharan Rai; west of jote lands of Bani Mandal.	Plot No. II, khas Nizamut.

Nuddea Collectorate, the 14th January 1890.

N. K. BOSE, for Collector.

NOTICE is hereby given that the undermentioned plot of the Nizamut lakhraj State lands, situate in the district of 24-Pergunnahs, will be put up to sale at the Collectorate of the 24-Pergunnahs on Friday, the 28th March 1890—

The purchaser of the plot will be subject to the following conditions :—

I.—The plot will be sold revenue-free to the highest bidder above the upset price.

II.—The sale to be subject to existing leases, and to the rights conferred by the settlement proceedings and by the laws in force, and purchaser to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the revenue authorities.

III.—If the amount of the purchase-money do not exceed Rs. 100, the whole amount will be paid down at once.

IV.—If the amount of the purchase-money exceed Rs. 100, one fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the 15th day after the sale, reckoning the day of sale as one, or if that day be a close holiday, then by noon of the first succeeding office day, the sale to be cancelled (the sum deposited being forfeited to Government), and the plot to be again put up for sale at the risk of the defaulting purchaser after issue of advertisement as in the case of original sale.

V.—The purchaser shall be put in possession on receipt of the orders of the Collector approving of the sale, but such possession shall be liable to be disturbed in case the final confirmaton of the Board of Revenue should not be accorded to the proceedings.

Name of estate.	Mouzah.	Pergunnah.	Approximate area.	Annual assessment.	Upset price.	Boundaries.	Remarks.
			B. K. CH.	Rs. A. P.	Rs. A. P.		
Dak Adda	Chitpore ...	Amirabad ...	0 3 6	16 14 0	506 4 0	South of the dwelling house of Jitu Dhobi, east of the tank belonging to Zebunnissa Begum, north of the dwelling house of Talemun Jemadar, and west of a public road and the sepoy post.	Dwelling-house of Kudroo Dhobi of Chitpore.

K. N. ROY, Deputy Collector, for Collector on tour.

NOTICE is hereby given, under section 6, Act XI of 1859, section 11, Act VII (B C) of 1868, and Act II (B.C.) of 1871, that the undermentioned dependent tenures in the Town Khas Mehal, in the district of Chittagong, will be put up to public and unreserved sale at the Collector's Office of that district on the 3rd day of March 1890, for arrears of rent and cesses remaining unpaid after the latest day of payment, the 26th day of December 1889.

Khas Tehsil Office, Town Circle.

Serial No.	No. of tenures in register No. I.	Names of tenures and their situation.	Annual Rental.		The amount of arrears for which the tenures to be sold.			Remarks.
			Rent.	Cess.	Rent.	Cess.	Total.	
		Thana town mouzah Bakalya, mehal Noabad.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1	887	20134/559 Taluq Manindra Chandra Ghose and others.	3,373 6 0	226 9 0	843 0 0	56 11 6	899 11 0	
		Mouzah ditto, thana ditto.						
2	895A	20134/559(ক) Taluq Khetra Moni Dasi and others.	1,135 11 9	44 6 0	284 0 0	11 1 0	295 1 0	The entire taluqa will be sold.
		Thana Fatikchir, mouzah Jouzkhala, mehal Noabad.						
3	4818	25878/588 Taluq Obedar Rahaman Khan	2,344 0	102 9 0	693 0 0	5 5 9	698 5 9	

Chittagong, the 14th January 1890. C. H. ALLEN, for Offg. Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Khulna will be put up for sale at the Collector's Office of that district on the 26th March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

1	2	3	4	5	6	7	8	9
No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
114-1	Kismut pergunnah Bajitpur.	2,124 4 7	.....	Share No. 1, 8*as.* 3*g.* 2*a.* 16*f.*	Shital Nath Bhanga and others.	420 2 8	.....	22 8 0
137-1	Kismut pergunnah Bhaluka	14,943 15 8	.....	Share No. 1, 4*g.* 13-5-8-1	Grijanath Ray Chowdhury and others	224 13 5	.....	31 10 5
159-4	Kismut Ramdanga, pergunnah Sarparajpur.	540 13 8	.....	Share No. 4, 2*as.* ...	Haran Chandra Majumdar and others.	68 11 8	.....	13 3 2
170-2	Kismut pergunnah Silimabad.	5,784 6 0	.....	Share No. 2, 2*as.* 0*g.*	Syamacharan Bosu and others.	885 11 9½	.....	310 16 6

Khulna Collectorate, the 8th February 1890. B. DE, Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Dacca will be put up for sale at the Collector's Office of that district on the 23th March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realised in the same manner as arrears of revenue.

When in columns 5, 7 and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Suddor jumma of whole estate	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the suddor jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
115	Pergunnah Patpashar, Banamch Mahadev Mukhopadhya.	10,758 0 1½	.....	Residue share ...	Hara Sundari Chaudhurani and others.	8,973 5 4½	... ...	3,624 7 4½
				Hisya 2a. 13g. 1kr. 1kt.	Monindra Nath Mukhopadhya and others.	1,795 10 9	.....	725 9 7
193	Pergunnah Rajnagar, Tuppeh Hosainabad Jawar, Hyderabad Khachak Pitrush market.	688 5 4½	Entire estate.	.....	Sukhmoy Chandra Das himself and manager for Gour Hari Das and others.	.....	69 12 2½	... .
194	Pergunnah Rajnagar, Hisya Raj Krishna Sen Chakla Nurpur Hurannessa.	708 9 11½	...	Residue share ...	Husni Khanam and others.	201 13 6½	...	78 11 9
197	Pergunnah Rajnagar, Chakla Nurpur, Debi Prosad Sen.	632 10 5½	... .	Hisya 2g. 8kr. 3kt.	Durga Sunker Sen ...	5 7 9	.....	2 8 1
272	Pergunnah Shahebabad May Peshkosh Dewani, Manuchch Mirza Hyderali.	533 5 4	.....	Residue share ...	Rajendra Narain Bandapadhya,	133 5 1	.....	83 7 1
				Hisya 1a. 11½g. ...	Ditto ditto ...	52 1 4	... ..	32 9 9
325	Tuppeh Moheswardi, Banamch Saha, Newaj Khan, Elahi Newaj Khan.	14,133 5 4½	.. ...	Hisya 15g. 1kr. 14t. 6k. Ananda Mohon, Hari Mohon and Krishna Mohun Das.	Ananda Mohon Das and others.	677 2 6	....	102 3 9
392	Pergunnah Bikrampur, taluq Brindavan Chandra Radha Kishore Sen, hisya 8a. Radha Madhav.	1,452 9 1	...	Residue share ...	Nanda Kumar Guha ..	425 6 1½	.....	150 11 6
348	Pergunnah Bikrampur, taluq Brindavan Chandra Radha Kishore Sen, hisya 8a. Raj Kishore Sen.	1,452 9 1	.....	Ditto ...	Rup Lal Raghu Nath Das and others.	554 10 2½	... ..	143 8 7
534	Pergunnah Bhawal Jawar Nalukot, taluq Sridhar Hari Rati, Krishna Ram Chakravorty.	544 0 0	... ..	Ditto ...	Joy Chandra Chaudhury and others.	74 15 9½	.....	43 12 2½
				Hisya 1a. Banga Chandra, Har Chandra Chakraverty.	Banga Chandra Chakraverty and others.	34 0 0	... ..	14 5 0½
				Hisya 9g. 2kr. 14t. Bramya Mayi Debya.	Brahmya Mayi Debya	16 4 8	.. ...	14 1 1
552	Pergunnah Mobarak Ujian, taluq Jagir Abdulla.	961 1 9½	.....	Residue share ...	Showdamini Gupta and others.	384 6 9½	.....	74 12 2
562	Shahar Chandina May Peshkosh Chandina, Maulvi Abdul Ali.	1,898 10 8	.....	Ditto ...	Protap Chandra Das and others.	664 8 2	.....	170 4 8
569	Pergunnah Bikrampur, taluq Ram Gunga Bosu.	684 3 0	.....	Ditto ...	Sitamani and others ...	256 9 0	....	95 0 0
4349	Pergunnah Patpashar, taluq Golam Hosen Chaudhuri.	930 3 11½	.....	Ditto ...	Amirannessa Khatoon, Manager for Maulvi Abdul Hye and others.	350 1 9	.....	86 15 11
				Hisya 1½a. Najbannessa and others.	Najbannessa and others.	67 3 5	.....	5 7 10
				Hisya 3a. 2g. 1kr. 14kt. Hamidannessa and others.	Hamidannessa Khatoon and others.	181 12 2	.....	55 11 11
5849	Pergunnah Hashara Raja Ram Chaudhuri.	823 10 1	Entire estate.	.....	Gojendra Nath Shome and others.	.....	1 12 0	.....
6551	Pergunnah Rajnagar, taluq Debi Prosad Ghosh.	642 2 1½	.....	Residue share ...	Kala Chand Sinha and others.	535 1 8½	.....	60 1 5
6454	Char Buktabali ...	584 0 0	Entire estate.	.....	Pran Nath Pare and others.	... ...	153 0 0	.....
8060	Tunneh Amirabad, Estate No. 234.	760 4 1½	Ditto ...	.....	Abhaya Charan Das and Brojendra Kumar Rai Chaudhuri.	.....	72 14 3	.....
9069	Char Fukurhati within Char Krishnapura.	510 0 0	Ditto ...	.....	Kripa Mayi Debya and others.	.....	7 2 0	.....
9083	Mouzah Golara Baluchari within Char Jalua Kamta.	752 0 0	Ditto ...	.....	A. M. Bhoogy Shaheb, Receiver.	.....	149 0 0	.....
9101	Char Tilli within Char Mirzapur.	1,187 0 0	Ditto ...	.....	Kailash Bashini and Bindhu Bashini Chaudhurani and others.	.....	299 0 0	... .
9762	Pergunnah Rurdakhat Char Delwarpur.	4,196 0 0	Ditto ...	.....	Jahanuddin Hyder and others.	.....	1,052 0 0	... ..

Dacca Collectorate, the 8th February 1890.

L. HABB, Offg. Collector.

NOTICE is hereby given that the proprietary right of Government, as specified in the conditions of sale below to the undermentioned estate, situate in the district of Maldah, will be put up to sale at the Maldah Collectorate on 26th March 1890, corresponding with 14th Chaitra 1296 B.S.

The purchasers will be subject to the following conditions of sale :—

Conditions of Sale.

1*st*.—The estate to be sold to the highest bidder above the upset price, which will be fixed by the Collector at the time of sale. The purchaser of this estate will be considered as the proprietor of the estate, and the entire proprietary right of Government in such estate will be transferred to him, subject to the revenue fixed in perpetuity.

2*nd*.—The sale to be subject to existing leases and to the rights conferred by the settlement proceedings and by the laws in force; and purchasers to be bound to respect the rights of resident cultivators who have signed the schedule of assessment prepared by the Revenue authorities.

3*rd*—If the amount of purchase money do not exceed Rs. 100, the whole amount to be paid at once.

4*th*—If the amount of purchase-money exceed Rs. 100, one-fourth of the amount bid to be immediately deposited. If the balance be not paid by noon of the fifteenth day after the sale, reckoning the day of sale as one, or, if that day be a close holiday, then by noon of the first succeeding office day, the sale is to be cancelled (the sum deposited being forfeited to Government), and the estate to be again put to sale at the risk of the defaulting purchaser, after issue of advertisement, as in the case of original sale.

Number on the district roll.	Name of estate and pergunnah.	Approximate area in acres.	Government revenue assessed.
		A. R P.	Rs.
98	Kismut Jot Kusturi, pergunnah Kotvali ...	62 0 12	50

Collector's Office, district Maldah, the 6th February 1890. POORNO CHANDRA CHATTERJEE, Dy. Collr in charge.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Beerbhoom will be put up for sale at the Collector's Office of that district on 26th March 1890, for arrears of revenue and other demands which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
53	Shahapur, pergunnah Joynugal.	3,190 7 0	.....	2*a*. 13*g*. 1*k*. 1 *kranti*	Choudhuri Mahomed Ichcha and others.	581 11 8	.....	4 7 0
75	Turigram, pergunnah Shahajapur.	1,508 0 0	The whole	.....	Shekh Tarikulla ...	.....	0 2 0	.....
94	Gokulata, pergunnah Chakala Gokulata.	3,250 14 0	.....	8*a*.	Dharmadas Gati Mustafi and others.	1,025 7 0	.....	13 1 6
109	Dasrka, pergunnah Ichchapukhuria.	1,803 1 0	.....	13*a*. 17*g*. 2*k*. ...	Giris Chandra Choudhuri, guardian of Kumaris Chandra Roy, minor, and others.	1,363 9 2	.....	3 10 1
122	Bajitpur, pergunnah Akbarshahi.	2,096 1 0	.....	9*a*. 8*g*. 1*kag*. 8 *til*.	Nil Madhab Roy and others.	1,760 12 11	.....	14 4 6
936	Palitpur Basantapur, pergunnah Dadshahi.	751 10 0	The whole	.....	Ratan Kumari Bibi and others.	.....	218 8 0	.....

Beerbhoom Collectorate, the 10th February 1890. N. K. SARKAR, Dy Collector in charge.

NOTICE is hereby given, under section 6, Act XI of 1859, that the undermentioned estates in the district of Durbhunga will be put up to public and unreserved sale at the Collector's Office of that district, on the 15th March 1890, corresponding with 9th Chajt 1297 F., on Saturday, at 12 o'clock, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue due on the 13th January 1890.

Serial No.	Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share.	Names of proprietors of properties to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
			Rs. A. P.				Rs. A. P.		Rs. A. P.
1	437	Erazi Ganz Barar Hurdaspore, pergunnah Bala Gutch.	547 1 10	.....	Patti ijmali 9 annas 12 gundas.	Mosamat Jasoda Koer, mother and guardian of Adyia Purshad Singh, Baboo Sital Parshad Singh, Shew Gulam Singh, Singheswar Parshad Singh, Nar Singh Parshad, Chitur Narain Singh, Kunj Narain Singh and others.	368 8 8	.....	300 8 4

Durbhunga Collectorate, the 12th February 1890. A. AHMAD, Deputy Collector, for Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Backergunge will be put up for sale at the Collector's Office of that district on the 26th March 1890, corresponding with 14th Chaitra 1296 (B.S.), for the kist ending 12th January 1890, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale:—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
1	Tuppeh Azimpur, hissa 8a. 19g.	2,431 4 4½	.....	Joint share, 6a. 10g. 3k. 1½ 10.	Asmat Ali Khan Choudhury and others.	917 7 6½	.....	6 10 10
1416	Taluq Bancua Ram Bosu, hissa 8a., pergunnah Bozergomedpur.	1,550 5 3	.....	3a. under separate account.	Dinabandhu Sen ...	200 5 10½	.....	45 6 4½
1437	Jiban Krishna Sen, Hari Krishna Sen, Komal Krishna Sen, Govindadeb Roy, Pran Mukhya Chandra Roy, Darpa Narayan Roy, and Mritonjaya Mukherjee taluq, pergunnah Bozergomedpur.	2,295 9 5½	.....	6a. 18½g. 1½kt. Ijmali share.	Uma Charan Bhattacharjee and others.	978 13 0½	.....	24 13 1
1548	Taluqe Mohammad Hanna, pergunnah Bozergomedpur.	1,159 3 8	.....	8a. Ijmali share ..	Grish Chandra Mukhapadhyaya and others.	579 9 10	.....	28 4 11
1578	Panioty Alexander taluq, pergunnah Bozergomedpur.	4,833 12 0½	.....	2a. Ijmali share ...	Jagadiswari Debya ...	604 3 2½	.....	113 2 11½
1185	Radha Krishna, Harananda Roy, and Kalidas Siddhanta taluq, pergunnah Bozergomedpur.	2½,036 10 10	.....	5a. 11½g. 1½k. Ijmali share.	Brindaban Chandra Chakervarti and others.	874 11 7	...	43 15 1½
1628	Ramna Banna Joar Mohammad Safi taluq, pergunnah Bozergomedpur.	19,487 10 8	.....	8a. 15½g. 19-15-0½-1. Ijmali share.	Golam Asad Choudhuri and others.	10,076 12 1	.....	2,119 11 7
1633	Ram Raja Deo taluq, pergunnah Bozergomedpur.	2,062 2 1½	.....	2a. Ijmali share ...	Jagadiswari Debya ...	257 12 2½	.....	51 13 5½
1613	Ditto ditto ...	2,062 2 1½	.....	3a. under separate account.	Taramani Debya ...	386 10 7	.....	78 6 2
1751	Radha Kanta Sen taluq, pergunnah Chandradwip.	996 10 8	.....	8a. Ijmali share ..	Kali Mohan Mohinta and others.	453 5 4	.....	2 13 9½
1764	Pergunnah Dakhin Shahabazpur, 3a. 1½g. 1kt. share.	8,543 6 8	Whole estate.	.....	Mr. Alexander Toms, executor of estate J. P. Wise and others.	.....	5,332 10 8½	.....
1916	Haveli Selimabad tappeh, hissa 10g.	1,045 7 9½	.....	5a. 10g. Ijmali share	Rama Sundari Gupta and others.	359 5 5½	.....	72 1 11½
1916	Ditto ditto ...	1,045 7 9½	.....	6a. 15g. share under separate account.	Kailash Chandra Sen Majumdar and others.	441 1 8½	.....	59 13 0½
3255	Pergunnah Ratandi Kalikapur, hissa 2a.	3,154 11 5	.....	7a. 6½g. 2kts. Ijmali share.	Umesh Chandra Roy Choudhuri and others.	1,445 14 5	.....	403 9 7
3257	Pergunnah Ratandi Kalikapur, hissa 4a.	6,309 6 10	.....	10g. Ijmali share ...	Jagadiswari Debya ...	107 2 6	.....	67 5 5
3258	Ditto ditto ...	6,309 6 10	.....	6½g. 2kts. Ijmali share	Ditto ..	131 7 4	.....	43 15 11
4345	Padua *alias* Ramjanpur, pergunnah Kashimpur Silapatti.	5,383 0 0	Whole estate.	.....	Abinash Chandra Ghosal and others.	... ..	421 8 9	... ..
4550	Kukua Khag Dom, Domingo Manual, DeSilva, Braja Mohan Sen, Durga Mohan Das, Musammat Krishna Mohini Osat taluq, pergunnah Bozergomedpur.	9,796 0 0	Ditto ..	.. ...	Jagadeswari Debya and others.	.....	For 1888-89 8,269 4 4, 1889, kist September 153 0 0, 1890, kist January 1,224 0 0	.....
4737	Madanpura Chur, pergunnah Ratandi Kalikapur.	1,139 0 0	Ditto ...	.....	Brindaban Chandra Chakervarti Roy Choudhuri and others.	.....	9,646 4 4 371 10 6	...
4893	Tiakheli, pergunnah Chandradwip.	533 14 3	.....	10a. 5g. Ijmali share	Nistarini and others	342 0 4	.....	32 0 6
4897	Ditto ditto ...	533 14 3	.....	1a. 15g. share under separate account.	Tarini Charan Somoddar.	88 6 4	.....	5 7 6
5008	Chak Barguna, Haola No. 13.	668 0 0	Haoladari right of the whole Haola.	.....	Ramjan Haoladar and others.	.....	167 0 0	.....
5193	Ramdeb Datta taluq, mouzah Harahipur, pergunnah Gopalpur Mirjanagar.	699 0 0	Whole estate.	.. ...	Jearuddin Haoladar and others.	.....	0 10 6	.....
5831	Kumaga Chur, hissa 1a. 18½g. 1kt., pergunnah Uttar Shahabazpur	1,169 0 0	.....	8a. 8g. 2kt. 11½til. Ijmali share.	Durga Prosonna Roy and others.	250 5 0	.....	178 0 1
5839	Chhota Lumchi Dhali Chur.	1,253 0 0	.....	3a. 8½g. 1kt. 20dhur. Ijmali share.	Mr. A. Toms, executor of estate of J. P. Wise and others.	262 11 7	.....	107 7 0
6449	Tappeh Sultanabad, hissa 7½g., Asimannessa Khatun and others.	543 1 4	Whole estate.	.....	Moulvie Abdul Wazed and others.	.....	5 10 4	... ...

Backergunge Collectorate, the 15th February 1890.

POORNO CHUNDER GUPTA, Deputy Collector in charge.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Furreedpore will be put up for sale at the Collector's Office of that district on the 25th March 1890, corresponding to 13th Choitra 1296 (B. S.), for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
249	Panchashazari, pergunnah Chandpratap.	744 0 0	Whole ..	.....	Iswar Chandra Saha and others.	.....	186 0 0	.....
284	Panchashazari, pergunnah Sahajapur.	1,521 0 0	Do. ...	.....	Jadub Chandra Bagchi and others.	.....	300 11 0	.....
3555	Taluq Ratneswar Pal Choudhury, pergunnah Nawabat Shahi.	2,559 13 8	.....	Hissa 4 annas ...	Uma Prosonno Pal Choudhury and others.	630 15 0	.....	61 11 6
3870	Taluq Ram Prosad Rai, pergunnah Kharagpur.	524 12 9½	Whole ...	.....	Abhoy Coomer Rai and others.	.....	27 15 6½	.....
4004	Taluq Kali Sanker Sen, pergunnah Rajnagore.	1,140 4 3½	Do. ...	.....	Kumadini Kant Barnjya Choudhuri and others.	.....	128 5 11	.....
4028	Zemindari Basudev Rai, pergunnah Rajnagore.	4,119 4 9½	.....	Hissa 10 annas exceeding the specific share bearing a revenue of Rs. 63-1.	Soshi Mohan Pal Choudhuri and others.	2,574 9 9½	.....	816 5 10
4028	Ditto ditto ...	4,119 4 9½	.....	Hissa 6 annas, ditto.	Gopi Mohan Rai Choudhuri and others.	1,481 10 0	.....	185 13 6
6220	Hissa Nilmoni Sen, pergunnah Rajnagore.	597 12 3	Whole ...	.....	Raj Coomer Pal and others.	.....	82 8 7½	.....
6220	Ditto ditto ...	597 12 3	.....	Hissa 7½ annas ..	Raj Coomer Pal and Mohima Chandra Pal.	280 3 1½	.....	74 0 2½
6220	Ditto ditto ...	597 12 3	Whole ...	.....	Haro Lal Pal and others.	.....	5 7 4½	.....
6220	Ditto ditto ...	597 12 3	.....	Hissa ½ anna ...	Haro Lal Pal ...	18 11 0	... .	4 14 11½
6305	Gazhi char, apertaining to char Madan Sankar.	670 12 0	Whole ..	... ..	Kripa Moyee Debya, Poorna Chandra Bandopadhya and others.	.....	11 7 3	... ..

Furreedpore Collectorate, the 15th February 1890. PUBNO CHANDRA RAI, Deputy Collector in charge.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Mozufferpore will be put up for sale at the Collector's Office of that district on 27th March 1890, corresponding 21st Chait 1297 Fasli, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue due on the 13th January 1890.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
261	Ibrahcempoor, pergunnah Brail.	535 0 9	.....	12a. 5g. 1k. 1k. ...	Baisakhi Lall and others.	410 2 9	.....	51 4 0
907	Akhta, pergunnah Babra Chumparun.	1,173 5 0	.....	3a. 12g. 2c. 2k. 12r. ...	Babu Salookat Deo Narayan.	266 8 1	.....	141 8 0½
921	Bazidpoor Dowlat, pergunnah ditto.	4,450 12 3	.....	8a. 1g. 1k. 1d.	Rajcoomar Babu, Deo Nunden Singh and others.	2,240 13 2	.....	113 8 6½
246	Chiknowtah, pergunnah ditto.	3,311 4 10	.....	6a. 1c. 1d.	Babu Shumbhoo Pershad, Chundika Pershad and others.	1,042 14 5	.....	449 8 11½
1099	Maksoodpoor Kurnah, pergunnah ditto.	1,067 11 9	.....	7a. 5g.	Rajcoomar Babu, Deo Nunden Singh and others.	483 13 1	... ..	25 1 9½
3494	Bidupoor, pergunnah Hajipoor.	1,707 3 3	The whole estate.	....	Ramkishun Panday ..	1,707 3 3	156 12 0	.....
3528	Joorawanpoor, pergunnah ditto.	719 10 7	.....	16g. 2c. 2k. 5r.	Harbuns Singh ..	37 7 8	.....	6 0 8
3528	Ditto	719 10 7	.....	8g. 3c. 3r.	Deo Narayan Singh ...	19 11 0	.....	3 7 5
3528	Ditto	719 10 7	.....	19g. 3c. 2k. 2d. 15r. ...	Patul Kuer	45 0 0	.....	4 11 11
3528	Ditto	717 10 7	... ...	2a. 14g. 1k. 5r.	Upnet Narayan ...	121 10 3	.....	17 8 6
3629	Maniarpoor, pergunnah ditto.	1,303 5 11	The whole estate.	.....	Bhagwat Narayan ...	1,303 5 11	295 1 4	.....
5402	Shariffpoor, pergunnah Nanpoor	506 9 1	.....	5a 6g. 2c. 2k.	Sher Bahadur Singh and others.	337 12 8	.....	20 14 5
9462	Erazee Nowberrar-Bungra, pergunnah Gudah Sand.	805 5 0	.....	1a. 6g. 2c. 2k.	Mangul Pershad ...	73 2 2	.....	9 0 4
9462	Ditto	805 5 0	.....	2a. 13g. 1c. 1k. 1d. ...	Debi Dutt Singh ..	144 5 4	.....	8 0 4
9462	Ditto	805 5 0	... ..	5a. 6g. 2c 1k. 2d.	Radhh Pal Singh ...	288 7 0	.....	0 1 4
9462	Ditto	805 5 0	.....	6a. 18g. 1c. 1k.	Braham Deo Narayan Singh.	380 6 6	.....	30 0 6
9894	Raja Pakurchakla, Gurjowl, pergunnah Bisarah.	958 2 8	The whole estate.	.....	Nawnidh Lall and others.	598 2 8	62 6 0	.....

Mozufferpore Collectorate, the 15th February 1890. E. B. HARRIS, Deputy Collector in charge.

NOTICE is hereby given, under section 6, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Hooghly will be put up to public and unreserved sale at the Collector's office of that district on the 24th day of March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale.

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of the proprietors of the property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
2	Mukoondopore, pergunnah Chowmahu.	Rs. A. P. 14,550 2 0	The whole estate.	...	Rajindra Narain Nundy and others.	Rs. A. P. ...	Rs. A. P. 450 9 11	Rs. A. P. ...
10	Radhakantobati, pergunnah Pandooa.	624 11 11	...	The entire estate except the share of which separate account has been opened.	Sreehurry Nundy and others.	593 13 11	...	59 6 0
11	Chhalalpore, pergunnah Pandooa.	707 0 2	...	Ditto ditto	Aisa Khaton *alias* Abadonnessa Bibee and others.	235 13 2	...	25 11 7
26	Malikapore, pergunnah Balgari.	10,595 3 8	...	Ditto ditto	Nil Komul Mitter and others.	4,507 14 8	...	1,683 7 4
49	Hatisala, pergunnah Chowmahu.	11,569 5 0	...	Ditto ditto	Raja Peary Mohun Mookerjee and others.	7,712 14 0	...	1,009 10 0
54	Thaipara pergunnah Pandooa.	1,008 1 0	...	7*a*. 19*g*. 1*k*. 8*til*. 6½ *kag*. share of seventeen mouzahs, "Thaipara and others" of which separate account has been opened and marked A.	Woomadotonnessa Bibee.	476 0 0	...	8 0 0
56	Chairpatati, pergunnah Pandooa.	606 7 2	...	The entire estate except the share of which separate account has been opened.	Bidhoomoni Dassee and others.	598 8 6½	...	170 0 0
65	Nundingram, pergunnah Pandooa.	1,075 9 0	...	8 Annas share of the estate of which separate account has been opened and marked A.	Keshb Chandra Chatterjee.	987 13 0	...	30 0 0
117	Rajhat, pergunnah Khosalpore.	726 0 3	..	The entire estate except the share of which separate account has been opened.	Jeebunkristo Gossain and others.	285 11 3	...	35 11 3
159	Chatra Baday, pergunnah Boro.	740 9 5	...	Ditto ditto	Bhola Nath Mitter and others.	43 15 1	...	0 1 10
159	Ditto ditto	740 9 5	...	2*a*. 13*g*. share of the estate of which separate account has been opened and marked A.	Chandra Kanto Mookerjee and others.	145 0 4	...	4 10 0
191	Haripore, pergunnah Chowmahu.	851 3 2	...	The entire estate except the share of which separate account has been opened.	Suthdoyal Banerjee and others.	728 2 2	...	87 4 10
2074	Jeerut Chur, pergunnah Hatkanda.	533 5 6	The whole estate.	.....	Joy Kristo Mookerjee	...	266 0 0	...
3521	Bigra, pergunnah Boro.	530 3 5	The whole estate.	.....	Ramdoyal Banerjee ...	...	198 0 0	..
3541	Khar Sarai, pergunnah Boro.	1,311 10 0	...	The entire estate except the share of which separate account has been opened.	Ramdoyal Banerjee ...	656 13 6	...	162 8 0
3994	Ramkristopore, pergunnah Boro.	563 14 0	...	8 Annas share of the estate of which separate account has been opened and marked A.	Ranee Surnomoyee Dassee.	281 15 0	...	103 0 0
4085	Sheikpore, pergunnah Baira.	10,443 11 0	...	The entire estate except the share of which separate account has been opened.	Girish Chundra Roy and others.	1,740 3 0	..	649 7 1

Hooghly Collectorate, the 14th February 1890. MAHOMED ISRAIL, for Collector of Hooghly.

NOTICE is hereby given, under section 6, Act XI of 1859, section 11, Act VII (B.C.) of 1868, and Act II (B.C.) of 1871, that the undermentioned dependent tenures in the Satkanea Khas Mehal in the district of Chittagong will be put up to public and unreserved sale at the Collector's office of that district on the 26th day of March 1890 for arrears of rent and cesses remaining unpaid after the latest day of payment, the 26th day of December 1889.

Mehal Noabad.

Serial No.	Nos. of tenures on Register No. 1.	Names of tenures and their situations.	Annual Rental		The amount of arrears for which the tenures to be sold.			Remarks.
			Rent.	Cesses.	Rent.	Cesses.	Total.	
	6	*Thanna Satkanea, mouzah Nupora.*	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1	1823	Taluk Raj Kumar Roy and Brojeshwari, bahoit taluk Bisheshwari Naba Kumar, No. 541–468.	1,017 2 0	44 8 0	310 0 0	13 7 0	323 7 0	The entire taluks will be sold.
	20	*Thanna Satkanea, mouzah Chumbal.*						
2	420	Taluk Tajannissa Chowdhuranee ...	1,193 4 10	176 13 6	745 4 10	110 6 6	855 11 4	

C. P. CASPERSZ, Offg. Collector.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Nuddea will be put up for sale at the Collector's office of that district on the 28th March 1890, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
423	Payerpore, pergunnah Futtehjungpore.	3,414 9 6	.....	5a. 10g. 2k. 17½til share bearing No. 423-0.	Kala Chand Biswas and others.	1,175 6 11	.....	1 3 3
				2nd Class Mehals.				
814	Char Bhabanandadyar, pergunnah Bhabanandadyar.	1,160 5 0	Whole estate.	.....	Messrs. Robert Watson and Co. and others.	.....	7,581 8 0	.....
815	Ditto ditto ...	1,100 5 0	Ditto ...	.....	Sreekrishna Bhowmik and others.	.....	3,077 14 2	.....

Nuddea Collectorate, the 15th February 1890. N. K. BOSE, Covtd. Deputy Collector in charge.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, and under Act VII (B.C.) of 1868, that the undermentioned estates or shares of estates in the district of Mymensingh will be put up for sale at the Collector's Office of that district on the 25th March 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
9	Zemindari pergunnah Attiah, hissa 2½ annas.	6,729 2 0	.....	Ejmali share exclusive of the separate accounts opened under sections 10 and 11 of Act 11 of 1859.	Nasamon Nessa Khanum Chowdhurain and others.	2,418 8 0	.....	36 6 6
70	Zemindari pergunnah Juanshaye.	10,525 14 0	.....	Separate share 2 annas 5 gds. 2 cr. 6 dips.	L. M. Pogose, L. G. Mary Pogose and others.	1,503 12 0	.....	329 15 5
96	Zemindari hissa 4½ annas with hejabeta taluq, pergunnah Nasirujial.	7,197 10 0	.....	Separate share 11 gds. 2cr. 2 kg 10 til. of Kismat Singdha.	Sheik Hazari and others.	1 10 0	.....	1 4 0
96	Ditto ditto ...	7,197 10 0	.....	1das. of taluq Dip Chandra Rai.	Mohim Chandra Roy Chowdhuri.	204 5 0	.....	70 0 0
96	Ditto ditto ...	7,197 10 0	.....	12½gds. share of the estate.	Muhamed Mafidar Rohoman.	230 12 0	.....	79 13 0
121	Thaneswar Badia, pergunnah Nasirujial.	729 10 0	.....	14ans. 19gds. 2cr. 2kg. ejmali share.	Apisullah Bhuya and others.	711 2 0	.....	275 8 0
124	Payandabeg, hissa 13 as. 6 gds. 2 cr. 2 kranta tuppeh Hasradi.	1,790 2 0	.....	7½as. share of Kismat Patua Bhanua, 6½as. share of Nagor Hasradi, 2as. of Bir Masua, 8 gds. of chakley Mahatpur and 16as. of other mouzas.	Upendra Kishore Roy Chowdury and others.	358 15 0	.....	84 9 9
137	Zemindari pergunnah Susung.	1,988 4 0	.....	15gds. 1cr. 2kranta and 16til share of the estate.	Joy Nath Roy ...	98 1 0	.....	33 5 0
	Ditto ditto ...	1,988 4 0	.....	8gds. 1cr. 2kranta 1 til share of the estate.	Biswaswari Debia and others.	58 5 0	.....	29 1 0
144	Zemindari pergunnah Sherepur, hissa 1a. 5g.	2,543 8 0	.....	Joint share exclusive of separate account opened under Act XI of 1859.	Dharani Kanta Chowdhuri and others.	1,814 1 0	.....	3 14 6
144	Ditto ditto ...	2,043 8 0	.....	2a. 14g. 3cr. 3 dips separate share of the estate.	Har Kumar Chowdhuri.	453 3 0	.....	145 9 0
3000	Char Ghugra Kandi, pergunnah Sherepur.	765 15 0	Whole ..	.....	Radha Ballav Chowdhuri and others.	.....	2 0 0	.....
6179	Juar Jagat Char, pergunnah Bardakhat, tuppeh Kurikhayl.	754 8 0	.....	1 anna separate share of the estate.	Ram Keshab Shaha and others.	67 3 0	.....	23 5 0
7503	Taluq Nurunnesa Khanum with ejmali mouzah Taratia Digar, tuppeh Ranbhawal.	1,296 0 0	Whole ...	.....	Administrator General of Bengal and others.	.....	146 9 8	.....
				Second class.				
5013	Chak Shakchura, Tuppeh Ranbhawal.	511 0 0	.....	15ans. 17g. share of the estate.	Goloke Chandra Bhattacharjya.	306 4 0	.....	136 6 0
5496	Char Jungaldi and others, pergunnah Sherepur.	1,220 0 0	Whole ...	.....	Kishori Mohan Chowdhuri and others.	.....	104 12 9	.....

Mymensingh Collectorate, the 14th February 1890. JUGGOBONDHU KHAN, Deputy Collector in charge.

NOTICE is hereby given, under sections 6 and 13 of Act XI of 1859, that the undermentioned estates or shares of estates in the district of Tipperah will be put up for sale at the Collector's office of that district on the 26th March 1890, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale.

1	2	3	4	5	6	7	8	9	10
Touji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.	Remarks.
26	Kismat 1a. 6g. 2c. 1k. 4d., pergunnah Bardakhat.	Rs. A. P. 13,319 4 9	.....	3a. 1½kara share.	Srimati Barni Khanam and others.	Rs. A. P. K. 2,508 0 8 2½	Rs. A. P.	Rs. A. P. K. 1,167 1 7 5 due up to Agrahayan 1296 B.S.	Accounts are separated under section 10 of Act XI of 1859.
28	Ditto ...	13,319 4 9	.....	14g. 1kara 9 [illegible] kt. share.	Nabin Chandra Das Roy and others.	309 9 2 14½	.....	64 9 5 2 ditto.	Remaining portion that has not been separated.
36	Kismat 3a., pergunnah Choudhrigano.	1,360 0 6	.....	4a. share ...	Amoka Charan Lashker and others.	340 0 0 17½	.....	46 2 0 12½ ditto.	Ditto ditto.
236	Taluk Ramdhan Majumder, pergunnah Mohabutpur.	1,189 13 10	.....	10a. 15g. 1kara 1kt. share.	Alam Rajah *alias* Idhangazi Chowdry and others.	793 3 11 0	.....	93 9 11 0 ditto.	Ditto ditto.
295	Taluk Shahazadi Khanam, pergunnah Narayanpur.	746 10 8	.....	3a. 11g. 1kara 2dt. share.	Srimati Shafaranessa Bibi and others.	165 14 9 9½	.....	0 8 0 0 ditto.	Ditto ditto.
378	Mousah Ahamudpur, pergunnah Bardakhat.	1,228 8 0	.....	5a. 6g. 2kara 2kt.	Ishan Chandra Roy.	409 7 4 0	.....	139 5 4 0 for kist November 1889.	Ditto ditto.
401	Jowar Bisharah, pergunnah Bardakhat.	3,141 3 0	.....	5a. 6g. 2kara 2kt.	Ditto ..	1,047 1 0 0	.....	386 5 8 0 ditto.	Ditto ditto.
455	Jowar Kaldi Gobindapur, pergunnah Bardakhat.	3,360 0 0	Whole...	.....	Golam Moula ...	.....	110 0 0 for kist November 1889.	.....	.....
1085	Chur Nagarerkandi, No. 211, pergunnah Utter Shahapur, re-assessed under Regulation 2 of 1819.	1,296 10 9	Do. ...	.....	Dr. George Manock and others.	.....	296 3 11 ditto.	.....	Property of individuals settled for 11 years from 1294 to 1304 B.S.
1083	Mousah Gangercoot, pergunnah Bardakhat.	895 0 0	Do.	.....	Braja Nath Roychowdry and others.	.....	76 14 5 ditto.	.....	Meadi taluk settled for 17 years from 1288 to 1304 B.S.
1863	Jowar Tinchitta, pergunnah Bardakhat.	603 12 3	Do. ...	.....	Durga Charan Das Majumder and others.	.....	210 5 2 ditto.	.....	Meadi taluk settled for 18 years from 1287 to 1304 B.S.
1933	Mousah Daiarah Chairpara, pergunnah Bardakhat.	1,451 1 3	Do. ..	.....	Kali Das Bhadra and others.	.....	277 12 0 ditto.	.....	Meadi taluk settled for 14 years from 1291 to 1304 B.S.
1933	Jowar Rasullabad, pergunnah Bardakhat.	3,969 14 11	Do.	.....	Kamalakanta Padder and others.	.....	1,361 10 6 ditto.	.....	Meadi taluk settled for 13 years from 1292 to 1304 B.S.
1963	Jowar Daulatpur, tappeh Kurikhai, pergunnah Bardakhat.	1,476 12 0	Do.	.....	Former owner—Ram Gopal Chakraborty and others. Auction purchaser—Mohesh Chandra Chakravarti. Sale not yet confirmed.	.....	493 14 0 ditto.	.....	Meadi taluk settled for 50 years from 1261 to 1310 B.S.

Tipperah Collectorate, the 15th February 1890. R. T. GREER, Offg. Collector.

NOTICE is hereby given, under sections 6 and 13 of Act XI of 1859, that the undermentioned estates in the district of Moorshedabad will be put up for sale at the Collector's office of that district on 21st March 1890, corresponding with 9th Choitro, Friday, 1296 (B.S.), for arrears of revenue due up to 13th January 1890.

1	2	3	4	5	6	7	8	9	10
Touji No.	Name of mehal and pergunnah.	Sudder jumma of the whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.	Remarks.
9	Kismut pergunnah Kasipore, pergunnah Kasipore.	Rs. A. P. 8,974 3 0	.....	1a. 8g. 9kgs. ...	Srinath Roy Chowdhury, &c.	Rs. A. P. 720 7 0	Rs. A. P.	Rs. A. P. 83 0 4	Of the entire estate, 1a. 8g. 9kgs. share belonging to Srinath Roy Chowdhury, &c., the sudder jumma of which is Rs. 720-7, will be sold.
268	Kismut Huda Barnagar, pergunnah Muraripore.	4,062 13 1 Police 72 2 4	...	8a. 19g. 2karas	Moharanee Brojo Sundari Debya.	2,277 10 11 Police 40 8 0	.....	963 8 10 Police 10 14 0	Of the entire estate, joint property (ijmali) of 8a. 19g. 2karas belonging to Bro Sundari Debya, th sudder jumma which is Rs. 2,318 11 will be sold.
		4,134 15 5				2,318 2 11		974 6 10	
457	Kismut mousah Syud Kulutia, pergunnah Fatehsinah	570 11 1	Entire mehal.	.....	Syud Fazlel Karim, &c.	.....	15 14 5	.....	
867	Kismut Gunj Jangipore, pergunnah Gonkur.	714 8 11	Ditto	.....	Bopin Behari Nath	.....	179 14 10	.....	
1464	North of kismut Jangipore, char Enayenagar, Balichata and Khiderpore.	528 2 0	Ditto	.....	Proprietress and settlement-maker, Rukshmini Barmanya.	.....	Current 396 0 0 Arrear 1,430 9 6 1,833 9 6	- - -	The proprietary and settlement right of the estate from 1st April 1887 up to 31st March 1894 will be sold.

Moorshedabad Collectorate, dated Berhampore, the 18th February 1890. J. G. RITCHIE, Offg. Collector.

NOTICE is hereby given, under section 6, Act XI of 1859, that the undermentioned estates in the district of Midnapur will be put up to public and unreserved sale at the Collector's Office of that district on 25th March 1890, Tuesday, corresponding with Bengali 1296, 13th Chaitro, and Amli 1297, 14th Chaitro, for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realised in the same manner as arrears of revenue due on the 12th January 1890.

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
41	Pergunnah Khandar, mehal Amra *alias* Bonai (thana Sabung and Midnapur).	Rs. A. P. 1,265 13 2	Entire...	.....	Gopinath Masanto, Nando Lall Masanto and others.	Rs. A. P.	Rs. A. P. 21 15 6	Rs. A. P. .....
45	Pergunnah Khandar, mehal Amonpur (thana Midnapur and Naraingur).	1,356 2 10	.....	9*a.* 1½*g.* 8 are of the joint property.	Baboo Kedarnath Bandopadhya, head assistant, on behalf of the minor of Turka estate, Radha Gobindo Pal, and the Collector of Midnapur on behalf of Haripado Masanto under the Court of Wards.	813 11 6	.....	46 16 19 (Minor has share in the estate.)
73	Pergunnah Kelle: Moinachor, mehal Anondopur (thana Sabung).	5,657 4 9	.....	Separate account— *A. g. k.* Anondopur... 6 5 0 Duborajpur 6 5 0 Madhubchuk 6 5 0 Kolagechea .. 3 2 2 Masomchuk 3 2 2 Shamsundurpur ... 3 2 2	Srimotya Dassi, Moni Dasi, mother and guardian of Sripoti Charan De, minor.	1,793 3 8	.....	636 9 8
80	Pergunnah Moyna, mehal Ankhuachuk Dakhin *alias* Dakhin Ankhua (thana Sabung).	873 13 6	Entire ...	.....	Khem Chandra Bandopadhya, self and Srimotya Nistarini Debya, mother and guardian of Panchanan and Lalit Mohon Bandopadhya, minors	.....	301 15 6	.....
134	Pergunnah Kelle: Midnapur, mehal Bader, thana Kespur.	906 6 1	Do. ...	.....	Brojo Das Datta	.....	310 8 9	.....
143	Pergunnah Sabung, mehal Bohbulpur (thana Sabung, Panskura).	2,698 3 1	.....	Separate account, 3*a.* 2*g.* 2*k.* share of the mehal.	Srimotya Dassi Moni Dassi, mother and guardian of Sripati Charan De, minor.	826 15 11	.....	181 8 11
204	Pergunnah Khandar, mehal Barikbar *alias* Bargones (thana Sabung, Midnapur and Naraingur).	3,496 0 3	.....	Joint property— *A. g. k.* Damudarbar Kelle: ... 4 0 0 Barikbar ... 4 0 0 Boandpur ... 4 0 0 Chowdhrychuk ... 4 0 0 Holodhorchuk 4 0 0 Mohonnondichuk ... 4 0 0 Babon Doluichuk ... 4 0 0 Ram Chandra chuk ... 4 0 0 Anondodoluichuk ... 4 0 0 Jibunchuk ... 4 0 0 Abhiram Bar 4 0 0 Ochunar .. 4 0 0 Damudarchuk 4 0 0 Arjunchuk .. 4 0 0 Kotsi .. ... 4 0 0 Bishtuchuk 4 0 0 Josoageera .. 4 0 0 Srimontopur 4 0 0 Mawa: Kelle: 4 0 0 Daca ... 4 0 0 Kwazchuk ... 4 0 0 Madnechukbar 4 0 0 Raghudoluichuk ... 4 0 0 Khordabad chuk ... 4 0 0 Cauk Basdeb 4 0 0 Jeswera ... 4 0 0 Krorda ... 4 0 0 Biswanath chuk ... 4 0 0 Dordra ... 2 6 1 Dordra chuk Kelle: ... 2 6 1 Lal chuk ... 2 6 1 Salukea ... 2 6 1 Gopal Sing chuk ... 2 6 1	Srimotya Prossono Moyi, Dinabundu Pardi and others.	780 13 6	.....	94 16 9
281	Pergunnah Batitaki, mehal Bural (thana town, Sabung, Naraingur).	1,213 7 5	.....	8*a.* of the joint mehal 8*a.* of the separate account mehal.	Jibun Kristo Ghose ... Administrator-General, Calcutta of the estate of Srikristo Ghose.	606 11 8 606 11 9	.....	190 7 7 190 5 1
271	Pergunnah Kelle: Moyna, mehal Borisa *alias* Borisa Ramchuk, (thana Sabung).	2,077 9 5	Entire...	.....	Ramhari Mondul and Sodanand Mondul and others.	.....	634 13 5	.....
323	Pergunnah Egrachor, mehal Bhatda, thana Egra.	3,614 13 4	.....	Joint property— Mouza Tetulea 1, Ke: Sararang, 2*a.* 7*g.* 5*k.*	Nundo Kumar, Satrughon Acharyya and others.	1,270 13 7	.....	4 11 6

15½*f.*; Bhatda, 8*a.* 9*g.* 2*k.*; Mirzapur 1; Kurokpura 1; Noripur 8*a*; Jhurea 1 mouza; Gopinathpur 1 mouza; Sundurpur 1 mouza, Ke: Kamardeyan 8*a.* 13*g.*; Norohoripur 1 mouza.

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of the whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
384	Pergunnah Kelle: Moynachor, mehal Chonera Chuk, thana Sabung.	Rs. A. P. 546 15 8	Entire...	.....	Dinabundhu Jana, Kartik Prosad Jana and others.	Rs. A. P.	Rs. A. P. 0 2 4	Rs. A. P. .....
386	Pergunnah Kasijora, mehal Dabnapukur, thana Panskura.	616 13 3 with police.	Do. ...	.....	Nemaichand De and Srimotya Dassi Moni Dassi, mother and guardian of Sripoti Charan Dey, minor.	.....	129 0 3 with police.	.....
387	Pergunnah Shahapur, mehal Dinkel, thana Debra.	2,900 3 1	.....	8a. share of the joint mehal.	Jibun Kristo Ghose ...	1,453 1 7	.....	484 3 1
				No. 1. 8a. of the separate account.	Administrator-General, Calcutta, estate Srikristo Ghose.	1,453 1 6	.....	484 3 3
391	Pergunnah Kedar Kund, mehal Duyan (thana Debra).	1,135 8 3	Entire...	....	Sridhoroharan Nundi ...	.....	390 8 3	.....
394	Pergunnah Kelle, Kasijora, mehal Gopalnagur, (thana Panskura).	1,511 0 9	.....	10a. 13g. 1k. 1kr. of the joint mehal.	Doyal Chondra Jana, Bisambur Jana and others.	1,007 5 10	.....	85 14 6
403	Pergunnah Gagnapur, mehal Ghosepur, thana Panskura.	1,208 1 8	..	8a. share of the entire joint estate.	Joint share Jibun Kristo Ghose.	604 0 10	.....	197 1 10
				No. 1, separate account 8a. share.	Administrator-General, Calcutta, estate Srikrishna Ghose.	604 0 10	.....	197 1 10
800	Pergunnah Sabung, mehal Horiharpur, thana Sabung.	2,427 11 0	.....	9a. 15c. share of the entire joint mehal.	Nemaichand Dey ...	1,479 5 11	.....	507 14 1
				No. 1, separate account, 6a 5g. share of the entire mehal.	Srimotya Dassi Moni Dassi, mother and guardian of Sripoti Charan Dey, minor.	948 5 1	.....	325 4 1
807	Pergunnah Chetna, mehal Horiramper, thana Daspur.	25,920 3 9 with police.	.....	8a. share of the mehal.	Joint share Nobolal Khan, Korulipodo Khan and others.	12,960 1 11 with police.	.....	4,895 7 1 with police.
839	Pergunnah Moynachor, mehal Ankhpurbo (thana Tamluk).	1,001 7 2	.....	8a, share of the joint mehal.	Dina Nath Bhuttacharjya	500 11 7	.....	173 1 4
842	Pergunnah Amarsi, mehal Jadubar *alias* Nayahusan, thana Pataspur.	907 12 3	.....	9a. 11g. 3k. 2kag. share of the entire joint mehal.	Premchand, Ishan Chandra Sera and others.	543 4 5	.....	16 8 9
851	Pergunnah Kelle: Kasijora, mehal Janabar, thana Panskura.	1,262 9	Entire .	.....	Kamda Charan Pal, Aiman Nessa Bibi and others.	.....	1 1 3	.....
893	Pergunnah Taruf Jamna, mehal Jamna, thana Sabung.	1,593 14 2	.....	6a. 1g. 3k. 2 kag share of the entire mehal.	Joint share Nemai Charan Dey.	607 14 4	.....	211 2 4
749	Pergunnah Sabung, mehal Khelnachota, thana Sabung.	718 5 10	Entire .	.....	Nemal Chand De and Srimotya Dassi Moni Dassi, mother and guardian of Sripoti Charan De, minor.	.....	149 7 10	.....
804	Pergunnah Kasijora, mehal Kolagechya (thana Panskura Tamluk).	1,149 8 7	.....	Joint property 12a. share of mouza Kollagechya.	Chandhori Nando ..	780 2 10	.....	268 14 10
810	Pergunnah Kelle: Kasijora, mehal Kesapat, thana Panskura.	800 6 2	Entire...	.....	Brojo Das Dutta	.....	275 3 3	.....
841	Pergunnah Moynachor, mehal Kripanandopur, thana Sabung.	675 8 7	Do. ..	.....	Natabur Das Adhikary, Godadhur Das Adhikary and others.	.....	230 13 11	.....
889	Pergunnah Moynachor, mehal Kherai, thana Sabung.	5,951 4 3	... ..	14a. 8g. 3k. share of the joint mehal.	Dinabundhu Nandi, Nemai Chand De and others.	5,370 1 5	.....	1,076 11 11
				No. 1, separate account, 1a. 11g. 1k. share of the entire mehal.	Dassi Moni Dassi, mother and guardian of Sripoti Charan De, minor.	531 2 10	.....	199 4 10
1064	Pergunnah Kasijora, mehal Nohna Kuwar Chuk, thana Panskura.	1 172 13 0 with police.	Entire...	.....	Nemai Chand Dey and Srimotya Dassi Moni Dassi, mother and guardian of Sripoti Charan De, minor.	.....	402 9 0	.....
1046	Pergunnah Sabung, mehal Nandobar, thana Sabung.	667 9 11	Do. ...	.....	Rajiblochon, Modhusudhon Sabud and others.	.....	1 8 11	..
1118	Pergunnah Shahapur, mehal Poponhori Choron *alias* Papon (thana Debra).	571 1 6 with police.	Do. ...	.....	Sridhor Charan Nandi ..	.....	195 15 5 with police	.....
1230	Pergunnah Kelle: Kasijora, mehal Ratalea (thana Panskura).	1,135 12 11 with police.	Do. ...	.....	Ditto ditto ...	.....	380 13 11 with police.	..
1260	Pergunnah Moynachor, mehal Ramchondropur, thana Sabung.	1,300 15 9	.....	No. 1, separate account, 10a. 13g. 1k. 1kr. share of the mehal.	Brojo Das Dutta ..	867 3 10	.....	288 15 10
1631	Pergunnah Kasijora, mehal Sridhorbosan *alias* Dhulears, thana Panskura.	1,456 13 6 with police.	.....	Separate account, mouza Sridhorbosan 1, mouza Dhulears 8a.	Rishi Kesh Bose ..	503 13 8 with police.	.....	288 3 3 with police

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
1486	Pergunnah Uttor Behar, mehal Shahrdahat *alias* Shahida, thana Datoon.	Rs. A. P. 3,171 4 8	.....	8a. 13g. share of the joint mehal.	Gopinath, Nando Lall Mazumdar and others.	Rs. A. P. 1,173 13 7	Rs. A. P.	Rs. A. P. 29 11 4
1500	Pergunnah Kasijora, mehal Uttorusutpur, thana Panskura and Tamluk. *Temporarily-settled estate.*	3,505 3 1	.....	No. 8, separate account, 8a. share of mouza Uttor usutpur.	Nemai Chand Dey and Dasi Moni Dasi, mother and guardian of Sripoti Charan De, minor.	640 0 0	.....	34 1 0
46	Pergunnah Pataspur, mehal Dehat Gokulpur. *Salpai mehal.*	23,333 15 3	Entire...	.....	Gopendro Nondon Das Mohapatro.	.....	307 16 8	.....
15	Pergunnah Taruf Biswan, mehal Gorahar, thana Khedgree.	814 0 0	Do. ...	.....	Proprietor Government tenant Durga Prosad Mirdha.	.....	179 13 0	.....

Dated Midnapur, the 21st February 1890. G. W. PLACE, for Offg. Collector.

NOTICE is hereby given, under section 6, Act XI of 1859, and section 11 of Act VII of 1868, that the undermentioned mehals and tenures borne in the towji of the district of Noakholly will be put up to public and unreserved sale at the Collector's office of that district, on Wednesday, the 26th March 1890, corresponding with 14th Choitra 1296 B S., for arrears of revenue and other demands like revenue recoverable under the law in force due for kist 12th January 1890.

1	2	3	4	5	6	7	8	9
Towji No.	Name of pergunnah, mehal and tenure.	Sudder jumma of entire estate or tenure.	Whether the whole estate to be sold or part thereof.	If only a share is to be sold, specification of such share or shares.	Names of proprietors or tenure-holders of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
1651	No. 14, Gayer makarari mesdi (temporary) howla Abdul Rahuman in chur Shulukya, *alias* Sunya, chur pergunnah Bhoolooah.	Rs. A. P. 565 15 11	Whole ...	.....	Wazuddin Maghi ...	Rs. A. P.	Rs. A. P. 241 11 0	Rs. A. P. .....
1602	No. 80, Gayer makarari mesdi (temporary) howla Asmatullah, Shubal Chandra Guha in chur Magdhara, pergunnah Sundip.	708 14 7	Do. ...	.....	Uma Charan Guha ...	.....	26 0 0	.....
1671	No. 1, Mudafat Mohammed Manwar, Mohammed Kalim, Akramuddin, Gayer makarari mesdi (temporary) abadkari howla Anwaruddin, Kali Das, Modan Nath in chur Gazi, pergunnah Jaira.	1,049 5 9	Do. ...	.....	Isapali Maghi ...	.....	779 4 6	.....
1671	Mudafat Mohammed Manwar, Mohammed Kalim, Akramaddin, No. 3, Gayer makarari mesdi howla Mohammed Manwar, Mohammed Kalim, Akramaddin, in chur Gazi, pergunnah Jaira.	1,283 9 0	Do. ...	.....	Srimati Halimennessa Chowdhurany.	.....	519 10 6	.....
1671	No. 45, Gayer makarari mesdi howla Sarfaddin, Kalimaddin, Sua Gazi, Kachim No. 270 Dakhal in chur Gazi, pergunnah Jaira.	585 9 7	Do. ...	.....	Asimaddin Patwari, Anursan Bibi, mother and guardian of Aminullah and Mofzil, minors, Chuny, Moti Meah, Kachim	.....	102 2 1	.....

Karimunnessa, Munsarali, Samadali, Tazmaddin, Umedali, Manoo Meah, Abdul Meah, Fasarally, Halimennessa, Kadirbakah, anbakah Amzad, Asabuddy Monharah.

Noakhally Collectorate, the 16th February 1890. C. R MARRIOTT, Offg Collector.

NOTICE is hereby given, under section 6, Act XI of 1859, that the undermentioned mehal, borne in the towji of the district of Noakholly, will be put up to public and unreserved sale at the Collector's Office of that district on Wednesday, the 26th March 1890, corresponding with 14th Chaitra 1296 B S., for arrears of revenue recoverable under the law in force due for kist 28th September 1889:—

1	2	3	4	5	6	7		
Towji No.	Name of pergunnah, mehal, and tenure.	Sudder jumma of entire estate or tenure.	Whether the whole estate is to be sold or part thereof.	If only a share is to be sold, specification of such share or shares.	Names of proprietors or tenure-holders of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
46	Kishmut Mohendra Narayan, pergunnah Bhundeep.	Rs. A. P. 837 1 11	Whole ..	.....	Chandra Mohan Nandy.	Rs. A. P.	Rs. A. P. 109 7 3	Rs. A. .....

Noakholly Collectorate, the 16th February 1890. M. M. CHUCKERBUTTY, Dy Collr., for Offg. Collr.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Sarun will be put up for sale at the Collector's Office of that district on the 17th March, 1890, corresponding with 11th Cheyt 1297F. (Monday), for arrears of revenue and other demands due on 28th September 1889, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

When in columns 5, 7, and 9 of the appended statement it is stated that only a share is to be sold, a separate account is kept for such share, and the other share or shares in the estate are excluded from the sale :—

1	2	3	4	5	6	7	8	9
Towji No.	Name of mehal and pergunnah.	Sudder jumma of the whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors of property to be sold.	If only a share is to be sold, the sudder jumma of such share.	If the whole estate is to be sold, the arrears due from it.	If only a share is to be sold, the arrears due from it.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
78	Deopur, pergunnah Ander.	3,309 12 10½	.....	*Ijmali.*—16*a.* in mouzah Izara; 4*a.* in Patar; 4*a.* in Pachbemia; 16*a.* in Deopur; 4*a.* in Seari.	Rampria Saru ...	1,048 7 3½	.....	338 0 8½
242	Siswa, pergunnah Ander.	821 5 4½	.....	*Ijmali.*—16*a.* in mouzah Hoosaina; 16*a.* in mouzah Siswa; 16*a.* in mouzah Kandh Puker; 16*a.* in mouzah Bowandih; 16*a.* in mouzah Kusila; 4*a.* in mouzah Meerpur Jitwar; 16*a.* in mouzah Uperwar; 16*a.* in mouzah Mogluripur; 16*a.* in mouzah Harnathpur; 4*a.* in mouzah Chandouli Puti.	Sheikh Goolam Hoosein and others.	628 14 10½	.....	25 2 11½
324	Umdha Phakooli, pergunnah Bal.	1,040 0 0	.....	*Ijmali.*—7*a.* in mouzah Umdha; 7*a.* in mouzah Phakooli.	Ram Govind Sahoo and others.	975 3 0	.....	152 11 5
386	Belesra, pergunnah Bal.	811 2 10½	.....	*Ijmali.*—14*a.* 8*p.* 5*k.* 4*m.* 2*d.* 10*kag.* in mouzah Belesra.	Kerat Chand Mohto.	744 11 10½	.....	4 0 9½
657	Khaira Kuchnar, pergunnah Bal.	5,048 12 9½	Whole estate.	.....	Ganga Parshad Singh and others.	.....	0 2 3	.....
726	Mirzapur, pergunnah Bal.	1,546 10 8½	.....	*Ijmali.*—16*a.* in mouzah Mirzapur; 16*a.* in mouzah Narowa Narainpur Mirapur Gopalpur; 16*a.* in mouzah Bunwari Basant; 16*a.* in mouzah Ramgadha; 16*a.* in mouzah Bakunthpur; 16*a.* in mouzah Gungajul.	Dil Raj Singh and Barmna Singh and others.	1,138 1 8½	.....	0 1 5½
830	Rusulpur, pergunnah Bal.	1,296 0 0	.....	*Ijmali.*—16*a.* in mouzah Belkanda; 8*a.* 6*p.* in Bishunpur; 1*a.* in Parsa; 16*a.* in Chandpura; 8*a.* 6*p.* in Chhitrowlia; 16*a.* in Rampur Nurnaggar; 8*a.* 6*p.* in Rusulpur; 8*a.* 6*p.* in Sarta; 8*a.* 6*p.* in Kotnea; 1*a.* 6*p.* in Mirzapur; 8*a.* 6*p.* in Manikpur.	Baboo Chandreswar Persad Narain Singh.	696 9 5½	.....	28 8 10½
1781	Shampur, pergunnah Barai.	1,013 3 3	.....	*Ijmali.*—12*a.* in mouzah Samerdeh; 8*a.* in mouzah Shampur; 16*a.* in mouzah Shampur Talab Doem, 8*a.* in mouzah Balapati; 16*a.* in mouzah Sultanpur; 8*a.* in mouzah Sheikhpur.	Shunker Parshad and others.	547 7 2	.....	34 10 10
2715	Karar Mahamedpur, pergunnah Gon.	724 15 0	Whole estate.	.....	Ram Parshad Sahoo, Ganga Parshad Sahoo and others.	.....	339 9 9	.....
2763	Sagoni *alias* Burghi, pergunnah Gon.	1,530 0 0	.....	*Ijmali.*—13*a.* 9*p.* in mouzah Sagoni; 12*a.* 9*p.* in mouzah Burghi; 12*a.* 9*p.* in mouzah Chandpara; 12*a.* 9*p.* in mouzah Harakhpara; 16*a.* in mouzah Launa; 13*a.* 9*p.* in mouzah Rajmara Mokimpur; 13*a.* 9*p.* in mouzah Senepatia.	Ram Nanaj Kuer and Ram Saran Singh, &c.	1,394 7 11½	.....	7 2 7
2872	Sondhani, pergunnah Gon.	6,806 1 11	.....	*Ijmali* share	Durga Singh and Jado Lal.	837 5 5	.....	213 10 0 2 *powa.*
2035	Kharika, pergunnah Kasmir.	612 2 4½	Whole estate.	.....	Sugao Ali Khan and Jamao Ali Khan and others.	.....	100 11 4½	.....
3175	Salehpur, pergunnah Kasmir.	1,110 0 0	Ditto ..	....	Ram Parsun Singh, auction purchaser.	.....	201 13 0	.....
3176	Ditto	649 0 0	.....	*Ijmali.*—16*a.* in mouzah Salehpur Dara-Sikah; 16*a.* in mouzah Chander Champur; 16*a.* in mouzah Chak Chhiter Madhooker.	Padaguth Tewari, auction purchaser.	604 0 0	.....	113 4 0
3177	Ditto	650 0 0	.....	*Ijmali.*—16*a.* in mouzah Salehpur Dara-Sikah; 16*a.* in mouzah Chander Champur; 16*a.* in mouzah Chak Chhiter Madhooker.	Sheo Karun Singh, auction purchaser.	605 0 0	.....	113 6 11½
3472	Doomria, pergunnah Madhui.	533 5 4	Whole estate.	.....	Thakur Parshad Singh and others	.....	95 13 6	.....
3513	Indai, pergunnah Manjhi.	633 9 7	.....	*Ijmali.*—13*a.* 10*g.* 1*k.* in mouzah Indai.	Ram Anugrah Rai and Ram Baran Rai, and others.	540 15 8	.....	32 12 0
3689	Lachhipur, pergunnah Narhun.	2,026 10 8	Whole estate.	.....	Lalco Singh and Fetch Naram Singh and others.	.....	0 0 4½	.....
3932	Jira-Dai, pergunnah Pachlukh.	624 1 3½	Ditto...	.....	Mossamut Raghoobunsi Kuer and others.	.....	7 3 1	.....
3938	Bisoonpur Mehwa, pergunnah Sipah.	777 15 2½	Ditto .	.....	Baboo Janki Parshad Sahee and Bhairo Parshad Sahee and others	.....	0 2 2½	.....

Sarun Collectorate, the 22nd February 1890.

RAGHU NATH SHAHI, Dy. Collr., for Collr.

NOTICE is hereby given, under sections 6 and 13, Act XI of 1859, that the undermentioned estates or shares of estates in the district of Cuttack will be put up for sale at the Collector's Office of that district on the 7th April 1890 for arrears of revenue and other demands, which, by the Regulations and Acts in force, are directed to be realized in the same manner as arrears of revenue.

Towji No.	Name of mehal and pergunnah.	Sudder jumma of the whole estate.	Whether the whole estate is to be sold.	If only a share is to be sold, specification of such share or shares.	Names of proprietors.	If a share is to be sold, the sudder jumma of such share or shares.	If the whole estate is to be sold, the arrears due from it.	If a share is to be sold, the arrears due from such share or shares.
		Rs. A. P.				Rs. A. P.	Rs. A. P.	Rs. A. P.
59	Kismut talook Kalimegha, pergunnah Jajpoor.	1,198 7 4	.....	Out of the estate kismut, 11*a.* 9*p.* 15*k.* 2*b.* 10*g.* share of Ananta Panda and others.	Ananta Panda, Kanhai Panda and others.	391 1 0	.....	9 0 5
656	Kismut mouzah Nagapur, pergunnah Suhang.	928 13 7½	.....	Out of the estate kismut, 15*a.* 2*p.* 9*k.* 2*b.* 12*g.* *Skauri* share of Chandhari Juggernath Santra Mahapater and others.	Kripa Sindhu Chaudhari and others.	882 11 0	.....	1 5 7½
742	Kismut mouzah Barahipur, pergunnah Sughunda.	531 4 10	Whole estate	.....	Gobind Chandra Puharaj and others.	.....	16 7 7	.....
744	Talook Manda, pergunnah Sughunda.	1,615 14 1	Ditto ...	.....	Juggernath Santra Mohapater and others.	.....	23 6 2	.....
1328	Talook Upper Barnan, pergunnah Barnan.	690 4 9	Ditto ...	.....	Daya Nidhi Dubai and others.	.....	20 7 10	.....
1981	Kismut mouzah Aitpur, pergunnah Kodinda.	655 10 6	.....	Out of the estate kismut 14 annas share of Radha Madhob Santra and others.	Radha Madhob Santra and others.	573 11 2	.....	81 2 3
2034	Kismut talook Rajhungsa, pergunnah Kodinda.	1,095 3 10	Whole estate	.....	Radha Madhob Santra, Hurra Kristo Mohanty and others.	.....	211 14 3	.....
2071	Talook Sree Sanderpur, pergunnah Silo.	980 2 0½	.....	Out of the estate kismut 13 annas share of Kasi Nath Dass and Surja Mani Dia and others.	Syed Abdul Kadar and others.	706 5 7½	.....	20 7 4½
2498	Talook Bisnabar, pergunnah Bukhrabad.	2,880 1 1½	Whole estate.	.....	Radha Madhob Santra and others.	....	250 11 8½	.....
2737	Mouzah Kantisal, pergunnah Kuta.	605 10 2	Ditto ..	.....	Kanhoo Charan Chaudhary and others.	.....	3 5 4	.....
3525	Kismut mouzah Narigan, pergunnah Katia.	720 14 7	Ditto .	.....	Janardan Mahapater and others.	.....	1 14 11	.....
3844	Talook Balabhadra, pergunnah Tikan.	1,106 12 4½	Ditto ...	.....	Chandhuranee Madhu Dei, grandmother and guardian of Madan Mohan Das, minor.	.....	101 12 8½	.....

Cuttack Collectorate, the 20th February 1890. A. C. SEN, for Collector.

Notice.

PURSUANT to the orders of Government, dated the 29th June 1881, particulars of the undernoted items of articles held by the Port Commissioners as Receivers of Wrecks, each article being of value above Rs. 100, are published for general information in accordance with the provisions of section 76, Act VII of 1880.

Date.	Recovery number.	Description of articles.	Weight.	Approximate value.	Where recovered.	Where lying.
		Port Approaches.	Cwt. qr. lbs.	Rs.		
16th August 1889 ...	10 P. A.	One country anchor	45 0 9	225	Poojally Creek	Port Commissioners' Works and Anchor yard.
22nd ,, ,, ...	11 ,,	One Rodgers' patent anchor	15 0 0	260	Ditto ...	Ditto.
		One chain 1⅛" of 30 fathoms	37 2 3			
27th ,, ,, ...	12 ,,	One Rodgers' patent anchor	50 0 0	150	Shibbaria .	Ditto.
4th September ,, ...	13 ,,	One English anchor	27 0 0	215	Budge-Budge	Ditto.
		One chain 1⅞" of 15 fathoms	16 1 10			
11th ,, ,, ...	14 ,,	One anchor	60 0 0	300	Rajpiputam .	Ditto.
27th November ,, ...	17 ,,	One English anchor	40 0 0	330	Kulpee ..	Ditto.
		One chain 1⅛" of 15 fathoms	26 3 26			
3rd December ,, ...	19 ,,	One country anchor	23 0 0	210	Do. ...	Ditto.
		One chain 1⅛" of 33 fathoms	35 3 23			
27th ,, ,, ...	21 ,,	One Rodgers' patent anchor	30 0 0	300	Saugor ...	Ditto.
		One chain 1¼" of 32 fathoms	48 3 0			
27th ,, ,, ...	22 ,,	One country anchor	50 0 0	1,660	Ditto ...	Ditto.
		One wooden stock	.. .. ..			
		One chain 1⅛" of 80 fathoms	102 3 12			
27th ,, ,, ...	23 ,,	One country anchor	58 0 4	960	Ditto ...	Ditto.
		One chain 1⅛" of 86 fathoms	154 2 25			
8th January 1890 ...	26 ,,	One country anchor	15 0 0	245	Ditto ...	Ditto.
		One chain 1⅛" of 55 fathoms	34 1 24			
10th ,, ,, ...	27 ,,	One Rodgers' patent anchor	36 3 8	1,585	Ditto ...	Ditto.
		One stock	.. .. ..			
		One chain 1⅝" of 155 fathoms	274 3 8			
13th ,, ,, ...	28 ,,	One English anchor	43 1 23	1,580	Ditto ...	Ditto.
		One stock	8 2 0			
		One chain 2¼" of 125 fathoms	255 3 26			
10th February ,, ...	31 ,,	One country anchor	12 0 0	305	Ditto ...	Ditto.
		One chain 1⅛" of 62 fathoms	49 0 26			
10th ,, ,, ...	32 ,,	One country anchor	13 0 0	110	Ditto ...	Ditto.
		One chain 1⅛" of 12 fathoms	0 2 3			
10th ,, ,, ...	33 ,,	One English anchor	42 0 0	230	Ditto ...	Ditto.
		One chain 1⅛" of 10 fathoms	17 3 27			

Port Commissioners' Office, Calcutta, the 11th February 1890. E. J. BEAUMONT, Asst. Conservator.

Excise.

NOTIFICATION.

1. The right of retail sale of the Liquors and Drugs specified below will be put up to auction at the Opium Sale-room, Board of Revenue, 2, Bankshall Street, on Tuesday, the 4th March 1890, and subsequent days, in the following order :—

Name of article.	Date of sale.
Ganja, Siddhi, Charas, Majum ...	Tuesday, the 4th March 1890.
Opium, Madak, Chandu	Wednesday, the 5th ditto.
Tari	Saturday, the 8th ditto.
Country Spirit, Rum and Imported Liquor by glass.	Monday, Tuesday, and Wednesday, the 10th, 11th and 12th March 1890.

2. A complete list of all the shops for which licenses will be offered and a copy of each form of license are open to general inspection at the Office of the Superintendent of Excise Revenue, 4, Bankshall Street, and the number of these shops is not under any circumstances to be increased during the term of three years ending the 31st March 1893, except under the Board's sanction in each case. The Superintendent of Excise Revenue, however, reserves to himself the right, in case of combination, or for other cause, to transfer (subject to there being no objection on police grounds), either before or after its settlement, any shop from the site specified in the list to some other site, provided that the new site, if it is more than 100 yards from the advertised one, does not bring the shop within a quarter of a mile of any other similar shop whose term of license is unexpired.

3. It is not at present intended to open any other shop during the term of the license; but the Superintendent of Excise Revenue does not absolutely bind himself in this respect. On special cause shown, and with the sanction of the Board of Revenue in each case, the number of shops may be increased: provided, however, that, whenever a new shop is opened, it will be optional to the holder of a similar license for the sale of Liquor or Drugs, if his shop is within a quarter of a mile of the new shop, to surrender his license without forfeiting his advance, when the Superintendent of Excise Revenue is to re-settle the shop by auction or otherwise.

4. The right of retail sale of the Liquors and Drugs is to be put up to auction at the sanctioned upset prices.

5. The right of retail sale of the Liquors and Drugs is to be put up to auction in separate lots of one or more shops, either in the order specified in the list, or in such other order as the officer conducting the sale may deem fit. When one lot has been sold, the next lot is not to be put up until the sum payable in advance on account of the lot already sold has been actually paid: provided, however, that, where the sum payable exceeds Rs. 25, a promissory note may be taken from any respectable and well-known purchaser in lieu of cash payment.

6. The purchasers of the right of retail sale of Country Spirit, Rum, and Imported Liquors are entitled to sell Imported Liquors by the glass only, the liquor to be drunk on the premises.

7. The auction is to be held subject to the following conditions :—

(*a*)—That the Superintendent of Excise Revenue does not bind himself to accept the highest or any bid.

(*b*)—That the settlement with each accepted purchaser will, in Calcutta and the Suburbs, be contingent on the production by him of the usual Police certificate or license, as the case may be, viz.—

For Excise licenses for— Doasta ... ... Rum ... Imported Liquors by glass Tari ... Ganja ... Siddhi ... Charas ... Majum	If to be held in Calcutta, a Police certificate in the form prescribed by section 36, Act IV (B.C.) of 1866, must be produced; and if to be held in the Suburbs, a Police certificate in the form prescribed by section 19, Act II (B.C.) of 1866, must be produced.
For Excise licenses for— Opium ... ... Madak ... ... Chandu	If to be held in Calcutta, a Police license in the from prescribed by section 39, Act IV (B.C.) of 1866, must be produced; and if to be held in the Suburbs, a Police license in the form prescribed by section 23 of Act II (B.C.) of 1866, must be produced.

(*c*)—That the person accepted as the purchaser is to state in writing, within seven days from the date of settlement, in what building he purposes to open his shop, and is at the same time to submit a plan showing clearly and distinctly what building or portion thereof he desires to be covered by the license, it being understood that the removal of shops to other premises than those named in the list attached to this notification will be contingent on the approval of both the Excise and Police authorities, and that any sum which has been paid as an advance of the license fee under the provisions of clause (*d*) of these conditions will be returned to any person to whom a license may be subsequently refused for Police reasons.

(*d*)—That the term of the license is to be for three years ending the 31st March 1893, and that, except in the case of Tari, the license fee for that period is to be paid in advance in the following instalments:—namely, the sum equivalent to the fee for two months, at the time of sale, and one month's fee on the date on which the currency of the license commences, and one month's fee on the 1st day of every succeeding month, until the whole of the fee due on the license shall have been paid. In the case of Tari only one month's fee

is to be paid in advance at the time of sale, and fifteen days' fee on the date on which the currency of the license commences, and the rest of the fee in half-monthly instalments, viz., on the 1st and 16th day of every month, until the whole of the fee due on the license shall have been paid. This condition is to be strictly enforced in future, and failure to comply with it is to be met by immediate cancelment of the license.

(*e*)—That the purchaser is not to be entitled to receive back any portion of his advance in the event of his shop being closed before the expiration of the term of the license on violation of any of the conditions of the license, or his being convicted of a non-bailable criminal offence, or of any offence against the Excise laws or rules; and in the case of the surrender of a license under Act VII (B.C.) of 1878, the licensee is to give fifteen days' previous notice in writing to the Superintendent of Excise Revenue, and pay a sum equal to the license fee for fifteen days, over and above the amounts already paid in advance; and in the case of the surrender of a license under Act I of 1878, the licensee is to give one month's previous notice in writing to the Superintendent of Excise Revenue, and pay such fine not exceeding six months' license fees as the Superintendent of Excise Revenue may adjudge, over and above the amounts already paid in advance.

(*f*)—That the currency of the license is to commence on the 1st April 1890, on which date the purchaser is to open his shop, in all respects prepared for the accommodation of customers, to be certified by an Excise Officer—failure to comply with this condition is to be met by the immediate cancelment of the license, the forfeiture of the deposit, and the levy of the fees for the month except in the case of delay caused by the non-issue of the Police certificate or Police license, for which a reasonable extension of time may be allowed upon application and cause shown to the Superintendent of Excise Revenue.

(*g*)—That where the amount of the sum payable in advance is required to be paid at once in cash, and the bidder fails to make such payment, the officer conducting the sale is either immediately to put up the lot again for sale, or after the other lots in the list have been disposed of, or he may postpone the sale to such future date as he shall then and there notify; and the defaulting purchaser is to be debarred from bidding for such lot, or for any other lot, and he is not to be allowed to remain in the auction-room; and that the defaulting purchaser will be liable for any loss that may accrue to Government in case it becomes necessary to re-sell a lot at a lower rate, either in consequence of his failure to deposit the sum payable at the time of sale, or to redeem his promissory note on or before 4 P.M. on the day following that on which the note was signed.

(*h*)—That the purchasers are to adhere to all the provisions of the Opium, Excise and Police laws, and of the rules which have been or may from time to time be prescribed by the Board of Revenue.

8. All sales subsequent to the date of the triennial sale in March are to be held subject to the conditions contained in this notification, so far as they may be applicable.

9. Any further information regarding the auction may be had on application at the Office of the Superintendent of Excise Revenue.

D. G. BONNERJEE,
Superintendent of Excise Revenue,
Calcutta, the Suburbs, Howrah, and Bally.

OFFICE OF THE SUPDT. OF EXCISE REVENUE; 4, BANKSHALL STREET, CALCUTTA, *the 14th February* 1890.

Statement of the Affairs of the Bank of Bengal for the week ending 18th February 1890.

LIABILITIES.	Rs.	A.	P.
Capital paid up	2,00,00,000	0	0
Reserve Fund	58,00,000	0	0
Public Deposits at Head Office Rs. 1,05,12,398 13 1			
Ditto ditto at Branches „ 94,66,405 7 2	1,99,78,804	4	3
Other Deposits at Head Office and Branches	3,02,51,538	13	0
Bank Post Bills, &c.	4,27,782	6	4
Sundries	6,50,373	3	5
Rupees	7,71,08,498	11	0

ASSETS.	Rs.	A.	P.
Government Securities	20,25,057	8	0
Other authorized Investments	71,51,776	0	0
Loans on Government and other authorized Securities	1,92,98,639	0	9
Accounts of credit on ditto ditto	1,06,58,969	4	9
Bills discounted and purchased	1,92,88,542	8	6
Balances with other Banks	7,66,893	2	11
Bullion	54,029	3	11
Dead Stock	12,25,904	5	11
Stamps	12,367	6	0
Sundries	3,02,438	4	3
	6,07,87,456	13	0
Cash and Currency Notes at Head Office Rs. 56,06,475 10 5			
Cash and Currency Notes at Branches „ 1,07,14,566 3 7	1,63,21,041	14	0
Rupees	7,71,08,498	11	0

By order of the Directors,
W. D. CRUICKSHANK,
Secy. and Treasurer.

F. T. LEWIS, Offg. Chief Accte.
Rate for Demand Loans 10 per cent.
Percentage 31·3.

BANK OF BENGAL,
Calcutta, 20th February 1890.

(3564-1)

Commissioners for making Improvements in the Port of Calcutta.

NOTICE

UNDER SECTION 69 OF ACT V (B.C.) OF 1870.

THE following packages, landed at the Jetties from the undermentioned ships, have been removed to the Commissioners' Import Warehouse, where they remain at the risk and expense of the owners. If not cleared within two months from the date stated against each item, they will be sold under section 72 of the said Act :—

Date of removal to Import Warehouse.	Number, mark and description.	Consignees.	Ships.
1890.			
Feb. 12	12 Sleepers, I S R	Order ...	S. S. "City of Venice
,, 12	1 Cask, D M in a diamond	Ditto ...	Ditto.
,, 12	2 Casks, 745 in a diamond, E S top ...	Ditto ...	Ditto.
,, 12	3 Cases, F E R E in a diamond ...	Ditto ...	Ditto.
,, 12	1 Case, 53 in a diamond, G S below ...	Ditto ...	Ditto.
,, 12	50 Cases, J W in a diamond ...	Ditto ...	Ditto.
,, 12	6 Bales, J T in a block, T P top ...	Ditto ...	Ditto.
,, 12	3 Cases, 8561 in a diamond, L S & Co. outside	Ditto ...	Ditto.
,, 12	4 Bales, P in a triangle, T C top ...	Ditto ...	Ditto.
,, 12	1 Case, S L B D in a diamond, S K & Co. outside	Ditto ...	Ditto.
,, 12	3 Casks, 87 in a diamond, T top ...	Ditto ...	Ditto.
,, 12	9 Casks, W L in a diamond, C below ...	Ditto ...	Ditto.
,, 12	1 Case, 1276 in a block within a triangle	Ditto ...	Ditto.
,, 12	1 Case, 600 in a diamond, W below ...	Ditto ...	Ditto.
,, 12	451 Packages, no mark	Ditto ...	Ditto.
,, 12	1 Parcel, S	Ditto ...	Ditto.
,, 12	1 Parcel, Mr. C. W. White	Addressed ...	Ditto.
,, 12	1 Chest, Captain Benches	Ditto ...	Ditto.
,, 12	1 Parcel, D in a triangle, J C top ...	Order ...	Ditto.
,, 12	1 Casting, A R T C by T R & Co. ...	Ditto ...	Ditto.
,, 12	3 Iron pipes, S	Ditto ...	Ditto.
,, 12	3 Iron pipes, S J F C	Ditto ...	Ditto.
,, 15	5 Cases, C in a diamond, E H F M or no mark	Ditto ...	Ditto.
,, 15	1 Case, M M J in a diamond, U H C outside	Ditto ...	Ditto.
,, 15	1 Piece pipe, M & E	Ditto ...	Ditto.
,, 15	1 Rundlet, B B	Ditto ...	Ditto.
,, 12	2 Cases, 8231 in a block, B L B outside	Ditto	S. S. "Inventor."
,, 12	3 Cases, 8098 in a block, B L B outside	Ditto	Ditto.
,, 12	11 Bales, H M S in a heart	Ditto	Ditto.
,, 12	1 Case, M O M I in a diamond ...	Ditto	Ditto.
,, 12	1 Case, 234 in a diamond, N P & G outside	Ditto	Ditto.
,, 12	3 Bales, S M I by 583 in a block	Ditto	Ditto.
,, 12	10 Bales, W in a double triangle, D below	Ditto	Ditto.
,, 12	1 Case, 525 in a diamond, W M M M outside	Ditto	Ditto.
,, 12	1 Parcel, Mr. G. W. Warburton, Adabarie Tea Estate, Tezpur.	Addressed	Ditto.
,, 12	3 Bars T-iron, M P	Order	Ditto.
,, 12	1 Iron chain, K by 34 in a diamond, S S top ...	Ditto	Ditto.
,, 12	1 Bundle flat iron, no mark	Ditto	Ditto.
,, 12	11 Sheet-iron, J C by G	Ditto	Ditto.
,, 13	250 Kegs, H V in a diamond	Ditto	S.S. "Clan Mackenzie.
,, 13	1 Case, 55 in a diamond, T below	Ditto	Ditto.
,, 13	1 Hogshead, Y in a diamond, R M top or no mark...	Ditto	Ditto.
,, 13	65 Packages no mark	Ditto	Ditto.
,, 13	1 Case, Messrs. Whiteaway, Laidlaw & Co., Chowringhee.	Addressed	Ditto.
,, 13	175 Bars flat iron, diamond W N below or no mark ...	Order	Ditto.
,, 13	29 Casks, C in a diamond	Ditto	S S. "Karamania."
,, 13	2 Cases, H & G in a diamond, G below... ...	Ditto	Ditto.
,, 13	2 Packages, W in a diamond, K D top	Ditto	Ditto.
,, 13	5 Bundles sheet-iron no mark	Ditto	Ditto.
,, 13	9 Bales, J T in a block, T P top	Ditto	Ditto.
,, 13	2 Cases, L N B K in a diamond, Delhi below, G A & Co. outside.	Ditto	Ditto.
,, 13	1 Case, 908 in a diamond, L B top	Ditto	Ditto.
,, 13	1 Case, L O C K E	Ditto	Ditto.
,, 13	1 Case, M O M I in a diamond, G A & Co. outside.	Ditto	Ditto.
,, 13	1 Bale, Miss Marton, Zenana Mission House, Lucknow.	Addressed	Ditto.
,, 13	3 Casks, 179 in a diamond, N P & G outside	Order	Ditto.
,, 13	16 Bales, P in a triangle, T C top ...	Ditto	Ditto.
,, 13	25 Bales, W in a double triangle, D below	Ditto	Ditto.
,, 13	20 Casks, W L in a diamond, C below ...	Ditto	Ditto.
,, 13	1 Case, 793 in a diamond, W L below ...	Ditto	Ditto.
,, 13	1 Case, K F	Ditto	Ditto.
,, 13	2 Casks, Brojo in a block	Ditto	S.S. "Niobe."
,, 13	1 Case, B C	Ditto	Ditto.
,, 13	2 Cases, H & C in a triangle ...	Ditto	Ditto.

Date of removal to Import Warehouse.	Number, mark and description.	Consignees.	Ships.
1890.			
Feb. 15	1 Case, S by 40 in a diamond, C H top	Order ...	S S. "Niobe."
„ 15	3 Cases, S by 51 in a diamond, C H top ...	Ditto ...	Ditto.
„ 15	2 Cases, S by 48 in a diamond, C C C H outside ...	Ditto ...	Ditto.
„ 15	5 Cases, S by 50 in a diamond, C C C H outside ...	Ditto ...	Ditto.
„ 15	1 Case, 27 in a block within a triangle, W H N below	Ditto ...	Ditto.
„ 15	1 Parcel, Baboo K L Dass & Son	Addressed ...	Ditto.
„ 15	1 Case, E. Abricht, care of Messrs. Albert Fetterli & Co., 14, Clive Row.	Ditto ...	Ditto.
„ 15	1 Case, 3046 in a diamond, A S E A outside ...	Order ...	Ditto.
„ 15	1 Case, 3054 in a diamond, A S top	Ditto ...	Ditto.
„ 15	1 Case, 3010 in a diamond, A S top	Ditto ...	Ditto.
„ 15	1 Case, B N	Ditto ...	Ditto.
„ 15	1 Case, B D by 87 in a diamond	Ditto ...	Ditto.
„ 15	1 Case, C R	Ditto ...	Ditto.
„ 15	1 Case, 625 in a diamond	Ditto ...	Ditto.
„ 15	3 Cases, D & C	Ditto ...	Ditto.
„ 15	1 Case, H E	Ditto ...	Ditto.
„ 15	1 Case, 2014 in triangle, H R & Co. below ...	Ditto ...	Ditto.
„ 15	1 Case, N S in a diamond, U H C outside ...	Ditto ...	Ditto.
„ 15	3 Cases, S J	Ditto ...	Ditto.
„ 15	2 Bundles hoop iron, no mark	Ditto ...	Ditto.

Port Commrs.' Office, Calcutta, the 22nd February 1890. (3565—1) G. H. SIMMONS, Vice-Chairman.

Oudh Forest Department.

BAHRAMGHAT DEPOT.

ON THE OUDH AND ROHILKHAND RAILWAY.

FROM this date the prices of sâl beams and scantlings supplied from this depôt will be as follows:—

BEAMS.—21 feet length, at Rs. 2-10 per cubic foot.
22 „ „ 2-12 „
23 „ „ 2-14 „
24 „ „ 3 „

Above the length given two annas per foot run will be charged. Any inches over the foot will be charged as a foot.

SCANTLINGS—From 12 to 20 feet, at Rs. 2-8 per c. ft.
Under 12 and over 7 „ 2-4 „
Under 7 feet „ 2 „

The above prices are for ordinary building purposes For *Planking Sleepers*, &c., special rates will be fixed by agreement.

The Department will still take orders for buildings all over at Rs. 2-4 per cubic foot, provided the scantlings are taken in fair proportion.

Second and Third Class Timber will be sold and price fixed by agreement.

Auction Sales will be held from time to time to clear off stock.

For further particulars apply to the Officer in charge.

By order of the Conservator of Forests, N. W. P. and Oudh, Oudh Circle.

KANHYA LAL,
Sub-Assistant Conservator of Forests,
Bahramghat Division.

Barhamghat, the 1st April 1886.

Government Cinchona Febrifuge.

THIS preparation is an efficient substitute for Quinine and can be purchased by Government officers for public and charitable purposes, and by any one taking *twenty pounds* at a time from the Superintendent, Botanic Garden, Calcutta, *for cash only*, at the following rates:—per four ounce tin, *Rs.* 3-14; per eight ounce tin, *Rs.* 7-4; per pound tin, *Rs.* 14. The general public can be supplied by the Superintendent, Botanic Garden, *for cash only*, at the undernoted rates:—per four ounce tin, *Rs.* 4-14; per eight ounce tin, *Rs.* 9-4; per pound tin, Rs. 17-8. This medicine is also sold by the principal European and Native druggists in Calcutta. Postage four annas per 4 oz. tin, eight annas per 8 oz. tin, and twelve annas per pound tin in addition to the foregoing rates.

TARA PRASANNA GUHA, B.L., intends to apply for enrolment as a Vakeel of the High Court.
(3496—4)

Wanted

A CASHIER for the Patna Municipality on salary of Rs. 50 per month. Applicants must possess a good knowledge of English and Hindee, and should be well versed in municipal rules and forms. A security of Rs. 3,000 in cash, or landed property, is also required. Applications with testimonials will be received by the undersigned up to 28th February 1890.

SYUD FUZL IMAM, Vice-Chairman.
Patna Municipality, the 14th February 1890.
(3557—2)

Notice.

WANTED three Peshkars or Inspectors, on salaries of Rs. 30 per mensem, for settlement work in the Sonthal Pergunnahs. None need apply who have not a knowledge of plane-table, of compass-surveying and experience in settlement work. Applications with copies of certificates to be sent to the undersigned at once.

J. A. CRAVEN, Settlement Officer.
Damp Camp Deoghur, the 10th February 1890.

Notice.

WANTED a Draftsman and Estimator for the District Engineer's Office, Dinagepore, on a salary of Rs. 50 (fifty rupees only) per mensem.

Applications, with copies of testimonials and drawings, will be received by the undersigned up to 15th March next. An experienced English-knowing man will be preferred.

A. K. MOOKERJEE, District Engineer.
(3562—2)

In the Court of Baboo Shamboo Chandra Nag, Subordinate Judge of Hooghly, Third Court.

RENT EXECUTION CASE No. 58 of 1889.

Nabo Kristo Mookerjee, decree-holder, *versus* Dyal Nath Bhattacharjee and others, judgment-debtors.

THE advertised property of the above judgment-debtors will be put up to sale in the highest bid on the 10th day of March 1890, at 12 o'clock noon, by the Nazir of the District Judge's Court, Hooghly, in the sale-room of the Court-house:—

Schedule of Property to be sold.

Two annas thirteen gundas one cowree one krantee share of lot Bundeiporo, bearing towji No. 77 of the Collectorate of Hooghly, situated in pergunnah Bundeipore, zillah Hooghly, sudder jumma of the whole 16 annas being Rs. 14,782-4-2, the upset value given by the decree-holder is **Rs. (5,000)**, five thousand.

SHAMBOO CHANDRA NAG, Subordinate Judge.
Hooghly, the 7th February 1890. (3529—3)

Notification.

THE Zemindari Dák Tax in the district of Sarun, for the year 1890-91, is fixed at the rate of 12 annas per cent. per annum on the sudder jamma of estates paying a revenue amounting to Rs. 50 and over.

The amount due for each estate is payable in two instalments—the first being due on the 28th March 1890, and the second on the 28th September 1890.

B. G. GEIDT, For Magistrate.

Notification.

IT is hereby notified for general information that, under section 46 of the Local Self-Government Act, No. III (B.C.), the District Board of Rajshahye, by a resolution of their meeting, held on the 22nd February 1890, have determined to levy road cess for the year 1890-91 at the maximum rate of 2 pice per rupee on the annual value of land.

J. C. PRICE, Chairman, District Board, Rajshahye.

The 22nd February 1890.

Road Cess Notification.

IT is hereby notified for general information that, under section 46 of the Bengal Local Self-Government Act, No. III (B.C.) of 1885, the District Board of Purneah, by a resolution of their meeting of the 3rd February 1890, have determined to levy road cess for the year 1890-91 at the full rate, *i.e.*, 2 pice per rupee on the annual value of land, &c.

SURENDRA NATH MOZUMDAR, Vice-Chairman, District Board.

Purneah District Board's Office, the 5th February 1890.

Road Cess Notification.

IT is hereby notified for general information that, under section 46 of the Bengal Local Self-Government Act, No. III (B.C.) of 1885, the District Board of Durbhunga, by a resolution of their meeting of the 10th February 1890, have determined to levy road cess for the year 1890-91 at the maximum rate, *i.e.*, 2 pice per rupee on the annual value of land, &c.

H. S BEADON, Chairman.

Durbhunga District Board's Office, the 21st February 1890.

Road Cess Notification.

DISTRICT 24-PERGUNNAHS.

IT is hereby notified that under Section 46, Act III (B.C.) of 1885, the District Board, 24 Pergunnahs, have, at a meeting held on the 21st February 1890, determined to levy road cess during the ensuing year 1890-91 at the maximum rate, namely, at the rate of one-half anna on each rupee of the annual value of land in the district.

RAJENDRA NATH MITRA, for Chairman.

Alipur, the 21st February 1890.

High Court Notice.

ESTATE RAJAH RAJ KISSEN.

Maharajah Sibkristo Bahadoor, *vs.* Kristo Chunder Ghose.

NOTICE is hereby given that on Wednesday, the 12th March next, at the hour of 1 o'clock in the afternoon, the Receiver of the High Court will put up for auction, at his office on the third floor of the Court-house, a lease for six years from the 1st Bysack 1297, corresponding with the 13th April 1890, of the undermentioned property, on the terms and conditions of a draft lease which may be inspected at the said office.

In Zillah Tipperah, Pergunnah Gungamundle, recorded in the Register of the Collector as Towji No 545, including the Churs appertaining thereto, viz., Nobbo Chur No. 1290, Chur Bahur *alias* Teetoor Chur No. 1608, Chur Surjo and Chur Sunjoora No. 1961, Chur Assad and Doobur Chur No. 21.

In Zillah Dacca, Chur Goagachia No. 10503, Chur Jamalpur No. 10505

For conditions of auction and further particulars apply to the Receiver of the High Court.

J. C. MACGREGOR, Receiver High Court.

High Court Receiver's office, the 18th February 1890.

(3562—4)

Lost.

THE lower halves of the Government Promissory Notes Nos. 236782 and 236783 of the 4 per cent. loan of 1865 for Rs. 500 each, originally standing in the name of the Bank of Bengal, and last endorsed to General Dumber Shum Shere Jung Bahadur Rana, the proprietor, by whom it was never endorsed to any other person, having been lost, notice is hereby given that payment of the above notes and the interest thereupon have been stopped at the Public Debt Office, Bank of Bengal, Calcutta, and that application is about to be made for the issue of a duplicate in favour of the proprietor The public are cautioned against purchasing or otherwise dealing with the abovementioned securities.

RAKHAL CHUNDRA CHATTERJEE, Secretary to the Representative of the Government of Nepal.

78, Dhurumtola Street, the 6th February 1890.

(3520—3)

Lost.

THE Government Promissory Note No. 238858 of 4 per cent. of 1865, for Rs. 500, originally standing in the name of Debnath Sreemany and last endorsed to Russick Lall Dutt the proprietor, by whom it was never endorsed to any other person; and also the Government Promissory Note No. 188252 of 4 per cent. of 1865, for Rs. 500, originally standing in the name of Kheeromoney Dassee, the proprietress, by whom it was never endorsed to any other person. Payment of the above notes and the interests thereupon have been stopped at the Public Debt Office, Bank of Bengal, and applications are about to be made for the issue of duplicates in favour of the proprietor and the proprietress.

RUSSICK LAUL DUTT, Bally, District Howrah.

(3550—3)

Stolen.

THE Government Promissory Note No. 220972 of the 4 per cent of 1865 for Rs. 500, originally standing in the name of Modhu Sudhir Kowar, and last endorsed to Kedar Nath Majumdar, the proprietor, by whom it was never endorsed to any other person. Payment of the above note and the interest thereupon have been stopped at the Public Debt Office, Bank of Bengal, and application is to be made for accrued interest and for issue of duplicates in favour of the proprietor after two years from date of last advertisement.

KEDAR NATH MAJUMDAR, Cooch Behar.

(3197—3)

Notification.

TO be peremptorily sold pursuant to an order and decree of the Calcutta High Court, Original Civil Jurisdiction, made in suit No. 130 of 1886 (wherein Sharat Chunder Mitter was plaintiff and Lall Behary Dey was defendant), and dated, respectively, the 18th of April 1888 and 27th of May 1886, by the Registrar of the said Court in his sale-room at the said Court-house on Saturday, the 22nd of March next, at 12 o'clock noon, the following property :—

Lot 1.—No. 21 (formerly No. 19), Shambazar Street, Calcutta, being a brick-built house and the land appertaining thereto, the area of which is about 16 cottahs, and which property is bounded on the north by Shambazar Street; on the east partly by the house of Wooma Churn Chatterjee and partly by the house of Ramtanoo Chatterjee; on the south by a house and tank belonging to the estate of Kristo Mohun Biswas, deceased; and on the west by the house of Gopee Nauth Moitra.

The abstract of title and condition of sale may be seen at the Office of the Registrar, High Court, Original Jurisdiction, or at the Office of Mr. N. C. Bose, Attorney for the plaintiff, at No. 3, Hastings Street, on any day before the sale and will be produced at the sale.

R BELCHAMBERS, Registrar.

N. C. BOSE, Plaintiff's Attorney.

High Court, Original Side, the February 1890.

(3554—1)

Notification.

TO be peremptorily sold by the Registrar of the Calcutta High Court, Original Side, in his sale-room in the Court-house, on Saturday, the 15th of March next, at the hour of 12 o'clock at noon, pursuant to the decree made by the First Subordinate Judge of 24-Pergunnahs in suit No. 77 of 1885 (wherein Rakhal Dass Mullick is plaintiff and Makhan Lall Chatterjee and others are defendants), and dated 26th January 1886, and the order made by this Court in the said suit, and dated 17th March 1888, the following properties:—

Lot No. 1.—No. 32, Jaliatollah Street, Calcutta, being a two-storied brick-built dwelling-house and premises with the land thereunto belonging, and on part whereof the same is erected and built, containing by estimation 4 cottahs and 12 chittacks or thereabouts, and which is bounded on the north by Dookhiram Ghose's house; on the south by Beni Madhub Ghose's house; on the east by a lane and the house of Gooroo Churn Dey; and on the west by the ryotee land of Gungaram Ghose.

Lot No. 2.—No. 24, Chasadhobaparah Street in Calcutta, being a two-storied brick-built dwelling-house and premises with the land thereunto belonging, and on part whereof the same is erected and built, containing by estimation 7 cottahs and 3 powas or thereabouts, and which is bounded on the north by the land and house purchased by Manick Chunder Mukherjee and a lane; on the east by the ancestral land of Bollye Chand Sing; on the south by the land of the said Sings and a public drain; and on the west by the house of Madhub Chunder Mundle.

The abstract of title and the conditions of sale may be seen at the Office of the Registrar, High Court, Original Side, and at the Office of Baboo Dwarka Nauth Dutt, Attorney for the plaintiff, at No. 5, Old Post Office Street in Calcutta, on any day before the sale, and will be produced at the sale.

R. BELCHAMBERS, Registrar.

Dwarka Nauth Dutt, Plaintiff's Attorney.

Calcutta High Court, Original Jurisdiction, the 16th January 1890. (3566—1)

Execution Case No. 903 of 1889.

IT is hereby notified that the following property belonging to the judgment-debtor (Sridhar Churn Nundi) will be sold by public auction by the Nazir of the District Judge of Midnapore, on the 15th day of March 1890, in the Court-house, in execution of a decree held by Iswar Chunder Chukrabatty for the realization of Rs. 823-1-3:—

Property.—Towji No. 1230, A register No. 2375, mehal Ratanea, pergunnah Kasijora, in the district of Midnapore, the Government annual revenue of which is Rs. 1,135-13.

PULIN BEHARY BOSE, First Munsif.

(3560—1)

Execution Case No. 905 of 1889.

IT is hereby notified that the following property belonging to the judgment-debtor (Sridhar Churn Nundi) will be sold by public auction by the Nazir of the District Judge of Midnapore, on the 15th day of March 1890, in the Court-house, in execution of a decree held by Srinath Chunder Chakrabati, for the realization of Rs. 807-3-6:—

Property. Towji No. 1118, A register No. 2185, mehal Papan Hari Churn *alias* Papan, pergunnah Shahapore, in the district of Midnapore, the Government annual revenue of which is Rs. 571-1-7.

PULIN BEHARY BOSE, First Munsif.

(3561—1)

Notification.

THE District Board of Hooghly, at a meeting held on the 17th February 1890, has fixed the rate of road cess to be levied in the district of Hooghly for the year 1890-91 at 6 pie per rupee on the annual value of lands and on the annual net profit of Mines, Quarries, Tramways, Railways and other immoveable property as prescribed in the law.

S. D. ROY, for Chairman.

Notice.

In the Court of the Subordinate Judge of First Court, Shahabad.

EXECUTION CASE No. 284 OF 1889.

Baboo Luchhmi Pershad Singh and another, decree-holders, *versus* Baboo Shiu Lochun Singh, judgment-debtor.

TO be sold by the Nazir of the District Judge's Court, Shahabad, on the 3rd March 1890, at 12 A.M., in the Subordinate Judge's Court-house at Arrah, the undermentioned property of the judgment-debtor Baboo Shiu Lochun Singh for satisfaction of a judgment-debt, Rs. 77,449-2:—

Ten annas and eight pies out of sixteen annas Mahal Laheri, asli with dakhli, bearing former towji No. 2656 and present towji No. 5540 of the Shahabad Collectorate, pergunnah Sasseram and sub-registry Sasseram. The annual revenue payable to Government for the entire sixteen annas mahal is Rs. 1,259-11-9.

DWARKANATH MITTER, Subordinate Judge, First Court.

Arrah, the 13th February 1890. (3568—1)

INSOLVENT NOTICES.

In the Court for the Relief of Insolvent Debtors at Calcutta.

In the matter of JOHN HENRY GRACIES, an insolvent.

Notice that an application for an *ad interim* protection order has been this day made by the said insolvent, and that such application will be heard and disposed of by the Acting Commissioner of the Insolvent Court on Monday, the 3rd day of March next, at the hour of half past 10 o'clock in the forenoon.

☞ "Any creditor of the said insolvent desirous of opposing such application must appear before the said Court at the time and place aforesaid."

Insolvent in person. (3569-1)

In the matter of RIDHKURRUN, an insolvent.

Notice that an application for an *ad interim* protection order has been this day made by the said insolvent, and that such application will be heard and disposed of by the Acting Commissioner of the Insolvent Court on Monday, the 3rd day of March next, at the hour of half past 10 o'clock in the forenoon.

☞ "Any creditor of the said insolvent desirous of opposing such application must appear before the said Court at the time and place aforesaid."

H. C. Chick, Attorney. (3570—1)

In the matter of NUNDO LALL DEY and MANIK LALL DEY, insolvents.

On Saturday, the 24th day of November 1888, by an order of this Court, the said insolvents were adjudged entitled to their personal discharge under the Act XI Vic., Chapter XXI as to all persons named in their schedule as creditors or claiming to be creditors respectively.

Insolvents in person. (3571—1)

In the matter of SHIBCHUNDER DASS, an insolvent.

On Saturday, the 11th day of January last, it was ordered that Saturday, the 19th day of April next, be appointed for the further hearing of this matter, and that, unless cause be shewn to the contrary on that day, the said insolvent be discharged personally as well as to his after-acquired property from all liabilities for debts, claims and demands of and against the said insolvent at the time of the filing of his petition for relief.

Insolvent in person. (3572—2)

In the matter of HURDOYAL, KANNOYALALL, SODARAM SHAM LALL, DOONGOORSEEDASS, SREENEERAIN, BUNGSHEDHUR and SUJUNCOOMAR of No. 90, Soolaputty, in co-partnership as piece-goods dealers, under the style or firm of Heemutram, Sujuncoomar, insolvents.

On Tuesday, the 28th day of January last, it was, on the petition of Nitram, a creditor of the said insolvents, adjudged that the said insolvents have committed an act of insolvency under the provisions of the Act XI Vic., Chapter XXI, and by another order of the same date the estate and effects of the said insolvents were vested in the Official Assignee.

Wilson and Chatterjee, Attorneys. (3573—2)

In the matter of ROBERT WALTER HALL, a European British subject, Commander of the India General Steam Navigation Company's Flat "Borelli," at present lying in the river Hooghly in the jurisdiction of the High Court, Calcutta, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Saturday, the 8th day of February instant, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

C. T. GEDDES, Attorney, (3574—1)

In the matter of NORRIS GRIFFITHS, residing at No. 16, Chowringhee, in Calcutta, carrying on business in co-partnership with Harry Etherington as proprietors of the Melbourne Switchback Railway at Sealdah in the Suburbs of Calcutta, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Thursday, the 6th day of February instant, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Wilson and Chatterjee, Attorneys. (3575—1)

In the matter of HORINATH SHAHA and MODUN MOHUN SHAHA, of No. 72, Harkutta Lane, Bow Bazar Street, in the town of Calcutta, formerly dealers in potatoes, latterly performing work on commission, and at present without work, insolvents.

Notice that the petition of the said insolvents seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Saturday, the 8th day of February instant, and by an order of the same date the estate and effects of the said insolvents were vested in the Official Assignee.

Insolvents in person. (3576—1)

In the matter of BHOOBUN MOHUN BOSE, of No. 76, Hurry Ghose's Street, in the town of Calcutta, a clerk in the service of the Municipality of Calcutta, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Monday, the 10th day of February instant, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Insolvent in person. (3577—1)

In the matter of ROGER GEORGE SETON CHEW, of No. 29, Wellesley Street, in Calcutta, a Doctor of Medicine and Surgery, and an Analytical Chemist (late Analyst to the Corporation of Calcutta), an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Tuesday, the 11th day of February instant, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Insolvent in person. (3578-1)

In the matter of GEORGE ROBERT CLAMPITT, a ticket-collector in the East Indian Railway, lately of Dinapore, then of Jamalpore, and at present of No. 7, Beparectola Lane in the town of Calcutta, an insolvent,

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in Office of the Chief Clerk on Tuesday, the 11th day of February instant, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Insolvent in person. (3579—1)

In the matter of HEROMBO CHUNDER BOSE, of No. 65, Kamardangah Road in Entally in the town of Calcutta, a clerk in the office of the Comptroller of India Treasuries, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Friday, the 17th day of January last, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Pran Nath Paul, Attorney (3580—1)

In the matter of GOBINDO CHUNDER MITTER and GOPAUL CHUNDER MITTER, both residing at No. 70, Shambazar Street, in the Town of Calcutta, carrying on business of order-suppliers, insolvents.

Notice that the petition of the said insolvents seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Thursday, the 23rd day of January last, and by an order of the same date the estate and effects of the said insolvents were vested in the Official Assignee.

N. G. Newgy, Attorney. (3581—1)

In the matter of DAVID JOSEPH ROBINSON, of No. 33, Serang's Lane in the town of Calcutta, an Engineer in the service of the Port Commissioners, Calcutta, an insolvent.

Notice that the petition of the said insolvent, seeking the benefit of the Act XI Vic, Chapter XXI, was filed in the Office of the Chief Clerk on Monday, the 17th day of February instant, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Insolvent in person. (3582—1)

In the matter of JOHN HENRY GRACIES of No. 2, Chandney Choke, 1st Lane, in the town of Calcutta, a steam-crane driver in the service of the Port Commissioners, Calcutta, an insolvent.

Notice that the petition of the said insolvent seeking the benefit of the Act XI Vic., Chapter XXI, was filed in the Office of the Chief Clerk on Thursday, the 13th day of February instant, and by an order of the same date the estate and effects of the said insolvent were vested in the Official Assignee.

Insolvent in person. (3583—1)

Chief Clerk's Office, the 25th day of February 1890.

Notice.

In the matter of KALI DAS CHOKROBORTI, an insolvent.

KALI DAS CHOKROBORTI, son of Radha Gobinda Chokroborti, deceased, of Bhitadia, topa Hazradi, district Mymensingh, has been declared an insolvent and discharged.

H. PETERSON, Officiating District Judge.

Mymensingh, Judge's Office, the 7th February 1890. (3541—1)

POSTAL NOTICES.

Mails for	Date of closing at Calcutta.	Route by which despatched
	1890.	
Egypt, Europe, America, Cape Colonies through United Kingdom.	4th March...	Per P. & O. steamer from Bombay.
Ditto (book-post and pattern packets).	3rd „ ...	Ditto.
Ceylon, Straits Settlements, Netherlands India, Labuan, Bankok (Siam), Philippine Islands, China and Japan.	10th „ ...	Ditto.
Australia, New Zealand, and Tasmania.	10th „ ...	Ditto.
Madras and Colombo ...	5th „ ...	Per P. & O. steamer *Chusan.*
Straits, China and Japan ...	27th Feb. ...	Per str. *Wingsang.*
Rangoon and Moulmein ...	26th „ ...	Ditto *Chanda.*
Ditto ditto ...	28th „ ...	Ditto *Palitana.*
Akyab, Kyaukpyu, Sandoway and Rangoon.	26th „ ...	Ditto *Euphrates.*
Port Blair ...	27th „ ...	Ditto *Peshwa.*
Natal and Mauritius ...	28th „ ...	Ditto *Warora.*

N.B.—The letter-box for inland articles (including articles for Burma and Port Blair and for Ceylon by land route) will be cleared for the last time for articles without the late-fee at 7 P.M. precisely, after which hour inland letters and papers fully prepaid and bearing an extra postage stamp of half-anna will be received up to 7-30 P.M.

On the day of despatch of the Mail for Europe, the letter-box for foreign articles will be cleared for the last time for articles without the late-fee at 8-30 P.M., and late letters and papers will be received up to 9 P.M. On other days the letter-box for foreign articles will be cleared for the last time for articles without the late-fee at 7 P.M., and foreign letters and papers fully prepaid, bearing an extra stamp of four annas, will be received up to 7-30 P.M. for despatch by any Foreign Mails despatched the same night.

E. HUTTON, Presidency Postmaster.

General Post Office, the 24th February 1890.

Unclaimed Letters held in the Calcutta General Post Office on 25th February 1890.

Alderson & Co.
Barook & Co.
Chuffoux, B.
Cockell, N. A. L. Q.
Cristal Tea Co.
Glasier, H.
Golmer, E.
Gunter, McInnes & Co.
Pirrie, J. S.
Presgrave, Richard Duncan.
Richards, Mrs.
Rowe, E. F.
Whittingham, Mrs.

Letters marked Care of "Post Office."

Allen, C. H.
Babonau, E. Hugh,
Baggs, Mrs.
Bain, Donald M.
Baldwin, W. H.
Barangercy, L.
Barker, F. W.
Barnafoom, F.
Barnes, W.
Baxter, Mrs.
Belitski, R.
Berkeley, C. M.
Bery, Adolph.
Brinckman, Captain.
Brown, W.
Bruce, R. G.
Carbery, Lady.
Chatterton, J.
Close, Henry.
Cooper, W.
Courage, R.
Crump, Mrs. E.
DePalma, Urbans.
Dickson, Mrs. E.
Douglas, G. P. H.
Drakeford, A.
Duclere, G. P.
Dunlo, Viscount.
Dymond, G. F.
Elliott, K.
Elmore, John S.
Fergusson, J. H. and Co.
Fisk, F. M.
Flaherty, O. H.
Forshaw, H.
Fraiser, H. C.
Fraiser, Miss F.
Francis, A. M.
Galbraith, Mr.
Gantzman, Charles.
Gifford, H. J.
Glover, W. E.
Godwin, George.
Green, W. W.
Grove, Henry.
Hamilton, C. J.
Hamilton, J. R.
Handcock, J. G.
Hardy, Mrs. M.
Hawksworth, Mrs.
Hewett, F. J.
Higgins, C. C.
Horus, Miss M. L.
Humphries, Mrs. H.
Hunter, H. C.
Jackson, T.
Jenkins, Miss M. R.
Johannessen, O. C.
Kennard, F.
Keogh, Mrs. M. E.
Lach, R.
Lamb, E. G.
Langer, J. O.
Lindeman, L. K.
Linton, C. E.
Livesey, Thomas.
Long, W.
Macdonald, E. B. D.
Mackenzie, J.
MacMaster, Donald.
Major, A.
Manual, A. M.
Matthews, J. R.
Mathewson, F.
Maxwell, Sir J. S.
May, J. J.
McAdoo, Mr.
McNair, Miss.
McSmith, D.
Menexis, Mrs. C.
Menzies, C.
Mifsud George.
Mole, P. C.
Morgan, Mrs. R.
Morshead, L.
Murphy, John.
Newby, C. R. A.
O'Mealy, Capt. D'Oyly.
Payne, E. H.
Penn, Mrs.
Platts, Mrs. S. K.
Potokie, Count, J.
Powell, F.
Prenter, Miss.
Remmington, Captain F. A.
Renwick, F. B. M.
Rennard, J. R.
Robart, P.
Robinson, G.
Rodnor, W. H.
Rosenstern, Otto.
Roskell, Richard.
Rubie, Phil C.
Sano, T.
Searle, F. W.
Sheumon, John.
Shrewsbury, Miss.
Shworth, T. K.
Sisam, Rev. W. B.
Soler, M.
Stebbing, Captain A. E.
Stretton, W. G.
Taylor, C.
Thomson, Captain W. A.
Thompson, D.
Thompson, G.
Tullock, Herbert.
Ursite, Johan.
Walter, F.
Walter, Amherst.
Weatherels, Harry.
Webster, Mrs.
Whittenberry, A. P.

Registered Letters.

Angri, Sig Natale.
Chiodetti, A.
Edwards, C.
Guiseppe, Celestini.
Leonard, C. B.
MacLeod, D. J.
MacMaster, Donald.
Marsland, W.
Mifsud, George.

Unclaimed Letters held in the Barrackpore Post Office on the 24th February 1890.

Baker, E.
Barns, A.
Bart, G. K.
Blackwell, Sergt. W.
Chadburn, Mrs. J. E.
Ferguson. H. F.
Harding, H. R.
Harvey Sergt.
Haswell, G.
Johastun, J.
Kindersley, C. E.
Lindsay, W. C.
McMinn, J.
Mertan, C. W.
Palore, L.
Stevens, Mrs. C.
Thompson, Jas

E. HUTTON
Presidency Postmaster, Calcutta.

Nuddea Rivers.

Report showing the least depths of water for the week ending Friday, the 21st February 1890.

Name of river.	Reach of river.	Least depth of water sounded.	Remarks.
		Ft. In.	
Bhagirati.	Entrance from Ganges ...	0 6	At mouth entrance practically closed.
	Thence to Nurpur ...	0 6	Dhopipara.
	From Nurpur to Jungipur ...	0 9	Hangabari
	„ Jungipur to Berhampur	0 10	Kesadanga.
	„ Berhampur to Cutwa ...	1 6	Kaligunge.
	„ Cutwa to Nuddea ...	2 0	Karkoria.
Bhyrub-Jelinghi.	Entrance from Ganges ...	5 6	
	Thence to Akriganj	4 9	
	Akriganj to junction of the Bhyrub and Jelinghi ...	3 9	Paharpore.
	Thence to Patkabari	4 6	Lalnagore.
	Patkabari to Nuddea	3 9	Punditpore.
Matabanga.	Entrance from Ganges ...	2 0	
	Thence to Chuypara ...	0 5	Sircarpara.
	From Chuypara to Shikarpur	0 6	Prapore.
	„ Shikarpur to Boalia ...	0 6	Shampore.
	„ Boalia to Chuadanga ...	2 6	Sialmari.
	„ Chuadanga to Kiwsenganj and Hanskhali...	2 3	Bustupore.

Gauge Readings.

	Locality.	Date.	Hour.	Height above zero.	Height above mean sea level.	Remarks.
			A. M.	Feet.	Feet.	
Ganges.	Sahebganj ...	22-2-90	0	1·92	66 0	Below zero.
	Rampore Boalia	23-2-90	12	0·52	42·52	
	Entrance of Bhagirati ...	22-2-90	7	1·05	40·06	
	Entrance of Bhyrub-Jelinghi ..	22-2-90	...	6·29	44·65	
	Entrance of Matabanga ...	22-2-90	...	2·25	.....	
Bhagirati...	Berhampur ...	24-2-90	12	2·08	35·87	
Jelinghi ...	Kishnaghur ...	21-2-90	...	3·50	12·39	
	Saroopgunge ...	22-2-90	6	3·33	7·63	
Matabanga	Hanskhali ...	21-2-90	...	2·60	13 51	

PURNA CHANDRA BOSE, *Accountant, for Exe. Engr., Nuddea Rivers Division.*
Berhampore, the 24th February 1890.

Annual Statement of the Seaborne Trade and Navigation of the Bengal Presidency and of its Chief Port (Calcutta) and each of its Subordinate Ports (Chittagong, Balasore, Cuttack, Pooree, and Naraingunge). Volumes I and II. Price Rs. 20 for 1888-89. Published at the Calcutta Custom House. Previous years volumes can also be obtained at the same price.

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R. H. WILSON,
Offg. Secy. to the Govt. of Bengal.

The 24th February 1886.

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Separate paging is given to this Part in order that it may be filed as a separate compilation.

PART V.

Acts of the Governor General's Council assented to by the Governor General.

GOVERNMENT OF INDIA.

LEGISLATIVE DEPARTMENT.

The following Act of the Governor General of India in Council received the assent of His Excellency the Governor General on the 21st February, 1890, and, is hereby promulgated for general information :—

ACT No. III OF 1890.

An Act to amend Acts VI and VII of 1884.

WHEREAS it is expedient to amend the Inland Steam-vessels Act, 1884, and the Indian Steamships Act, 1884, in manner hereinafter appearing; It is hereby enacted as follows :— 1884. 1884.

Inland Steam-vessels Act, 1884.

1. For the definition of "inland water" in section 5, clause (*3*), of the Inland Steam-vessels Act, 1884, the following shall be substituted, namely :— Amendment of section 5 (3), Act VI, 1884. 1884.

"(*3*) "inland water" means any canal, river, lake or navigable water in British India :"

2. After section 8 of the said Act the following shall be inserted, namely :— Insertion of new section after section 8.

"8A. Before a survey under this Act is commenced, the owner or master of the steam-vessel to be surveyed shall pay to such officer as the Local Government, from time to time, appoints in this behalf— Fees in respect of surveys.

(*a*) a fee calculated on the tonnage of the steam-vessel according to the rates in the second schedule hereto annexed, or according to any other prescribed rates; and,

(*b*) when the survey is to be made in any place of survey other than Calcutta, Madras, Bombay or Rangoon, such additional fee in respect of the expense (if any) of the journey of the surveyor to the place as the Local Government, from time to time, by notification in the official Gazette, directs."

3. In section 10, sub-section (*3*), of the said Act the words "in addition to the fee payable for the certificate" are hereby repealed. Repeal of part of section 10 (3), Act VI, 1884.

4. (*1*) In section 11, sub-section (*1*), of the said Act the words "fees and other" are hereby repealed. Amendment of, and addition to, section 11, Act VI, 1884.

(*2*) To the same section the following sub-section shall be added, namely :—

"(*4*) The Local Government may, from time to time, delegate,—

(*a*) with the previous sanction of the Governor General in Council, to any person, by name or as holding an office, the function, assigned to the Local Government by sub-section (*1*), of granting a certificate of survey under that sub-section ;

(*b*) of its own authority, to any person, by name or as holding an office, the function, assigned to the Local Government by sub-section (*3*), of causing notice to be given of a certificate of survey being ready for delivery :

Provided, with respect to clause (*a*) of this sub-section, that no delegation of the function mentioned in that clause shall be construed to authorise the grant of a certificate of survey by the surveyor who gave the declaration of survey under section 9."

5. Section 12 of the said Act is hereby repealed. Repeal of section 12, Act VI, 1884.

6. In section 17 of the said Act, between the word "which" and the word "granted", in both places where the expression Amendment of section 17, Act VI, 1884.

"which granted" occurs, the words "or whose delegate" shall be inserted.

Amendment of section 19, Act VI, 1884.

7. In section 19, sub-section (*1*), of the said Act, after the words "on the application of the owner or master," the words "and the payment by him of such fee, not exceeding twice the amount of the fee for the previous survey, as the Local Government may require," shall be inserted.

Amendment of section 21, Act VI, 1884.

8. In section 21, sub-section (*2*), clause (*d*), of the said Act, for the words "for certificates of survey" the words in respect of surveys" shall be substituted.

Insertion of new section after section 25, Act VI, 1884.

9. After section 25 of the said Act the following shall be inserted, namely:—

Grant of certificates of service.

"25A. (*1*) The Local Government may in its discretion grant without examination to any person who has served as a master, or as an engineer, or as an engine-driver, of an inland steam-vessel before the first day of April, 1890, a certificate of service to the effect that he may act as a first-class or second-class master, or as an engineer, or as an engine-driver, as the case may be, of an inland steam-vessel.

(*2*) A certificate of service so granted shall have the same effect as a certificate of competency granted under this Act after examination."

Amendment of section 26, Act VI, 1884.

10. In section 26 of the said Act the words "or service" shall be inserted after the word "competency".

Addition to section 29, Act VI, 1884.

11. To section 29 of the said Act the following shall be added, namely:—

"The Local Government may also make rules with respect to the grant of certificates of service under this Act, and may by such rules—

(*a*) fix the fees to be paid for such certificates, and

(*b*) prescribe the form in which such certificates are to be framed and the manner in which the copy of the certificate which is kept by the Local Government is to be recorded."

Addition to Chapter VII, Act VI, 1884.

12. To Chapter VII of the said Act the following shall be added, namely:—

Power for Local Government to make rules for protection of passengers.

"51A. (*1*) The Local Government may also make rules for the protection of passengers in inland steam-vessels, and may by such rules require, among other matters, a sufficient quantity of fresh water to be provided free of charge in such vessels for the use of passengers, and the prices of passenger-tickets to be printed or otherwise denoted on such tickets.

(*2*) Any rule under this section may contain a provision that any owner, master or passenger committing a breach of it shall be punished with fine which may extend to fifty rupees."

Insertion of new section after section 54, Act VI, 1884.

13. After section 54 of the said Act the following shall be inserted, namely:—

Penalty for having excessive number of passengers on board.

"54A. If an inland steam-vessel has on board thereof or on or in any part thereof a number of passengers which is greater than the number of passengers set forth in the certificate of survey as the number which the vessel or the part thereof is, in the judgment of the surveyor, fit to carry, the owner and master shall, for every passenger over and above that number, be each liable to a fine which may extend to ten rupees."

Amendment of heading to second schedule, Act VI, 1884.

14. In the second schedule to the said Act, for the words and figures "*See section 12*" the words, figure and letter "*See section 8A*" shall be substituted.

Indian Steamships Act, 1884.

Insertion of new section after section 10, Act VII, 1884.

15. After section 10 of the said Act the following shall be inserted, namely:—

Fees in respect of surveys.

"10A. Before a survey under this Act is commenced, the owner or master of the steamship to be surveyed shall pay to such officer as the Local Government, from time to time, appoints in this behalf—

(*a*) a fee calculated on the tonnage of the steamship according to the rates in the schedule hereto annexed or according to any other prescribed rates and

(*b*) when the survey is to be made in any port of survey other than Calcutta, Madras, Bombay or Rangoon, such additional fee, in respect of the expense (if any) of the journey of the surveyor to the port, as the Local Government, from time to time, by notification in the official Gazette, directs."

Repeal of part of section 12 (3), Act VII, 1884.

16. In section 12, sub-section (*3*), of the said Act, the words "in addition to the fee payable for the certificate" are hereby repealed.

Amendment of, and addition to, section 13, Act VII, 1884.

17. (*1*) In section 13, sub-section (*1*), of the said Act the words "fees and other" are hereby repealed.

(*2*) To the same section the following sub-section shall be added, namely:—

"(*4*) The Local Government may, from time to time, delegate,—

(*a*) with the previous sanction of the Governor General in Council, to any person, by name or as holding an office, the function, assigned to the Local Government by sub-section (*1*), of granting a certificate of survey under that sub-section;

(*b*) of its own authority, to any person, by name or as holding an office, the function, assigned to the Local Government by sub-section (*3*), of causing notice to be given of a certificate of survey being ready for delivery;

Provided, with respect to clause (*a*) of this sub-section, that no delegation of the function mentioned in that clause shall be construed to authorise the grant of a certificate of survey by the surveyor who gave the declaration of survey under section 11."

Repeal of section 14, Act VII, 1884.

18. Section 14 of the said Act is hereby repealed.

Amendment of section 19, Act VII, 1884.

19. In section 19 of the said Act, between the word "which" and the word "granted", in both the places where the expression "which granted" occurs, the words "or whose delegate" shall be inserted.

Amendment of section 21, Act VII, 1884.

20. In section 21, sub-section (*f*), of the said Act, after the words "on the application of the owner or master," the words "and the payment by him of such fee, not exceeding twice the amount of the fee for the previous survey, as the Local Government may require," shall be inserted.

Amendment of section 24, Act VII, 1884.

21. In section 24, sub-section (*2*), clause (*d*), for the words "for certificates of survey" the words "in respect of surveys" shall be substituted.

Amendment of heading to second schedule, Act VII, 1884.

22. In the schedule to the said Act, for the words and figures "*See section 14*" the words, figures and letter "*See section 10A*" shall be substituted.

S. HARVEY JAMES,
Secretary to the Government of India.

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[REGISTERED No. 29.]

No. 6 of 1890.

SUPPLEMENT TO
The Calcutta Gazette.

WEDNESDAY, FEBRUARY 5, 1890.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE *may receive the* SUPPLEMENT *separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.*

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Abstract of the Proceedings of the Council of the Lieutenant-Governor of Bengal, assembled for the purpose of making Laws and Regulations under the provisions of the Act of Parliament 24 and 25 Vic., Cap. 67.

THE Council met at the Council Chamber on Saturday, the 1st February, 1890.

Present:

The HON'BLE SIR STEUART COLVIN BAYLEY, K.C.S.I., C.I.E., Lieutenant-Governor of Bengal, *presiding.*

The HON'BLE SIR CHARLES PAUL, K.C.I.E., *Advocate-General.*

The HON'BLE F. B. PEACOCK.

The HON'BLE P. NOLAN.

The HON'BLE T. T. ALLEN.

The HON'BLE SIR HENRY HARRISON, KT.

The HON'BLE SIR ALFRED CROFT, K.C.I.E.

The HON'BLE DR. MAHENDRA LAL SIRCAR, C.I.E.

The HON'BLE C. H. MOORE.

The HON'BLE H. PRATT.

The HON'BLE SHAHZADA MAHOMMED FURROKH SHAH.

The HON'BLE DR. RASH BEHARY GHOSE.

The HON'BLE RAJA RAMESHWAR SING BAHADUR.

BENGAL VACCINATION BILL.

THE Hon'ble SIR HENRY HARRISON moved that the Report of the Select Committee on the Bill to amend the Bengal Vaccination Act, 1880, and Act II, 1887, be taken into consideration in order to the settlement of the clauses of the Bill.

The Motion was put and agreed to.

The Hon'ble SIR HENRY HARRISON also moved that the clauses of the Bill be considered for settlement in the form recommended by the Select Committee.

He said:—"I have explained the object of the Bill at a previous meeting, and it is therefore not necessary for me to say anything further on this occasion."

The Motion was put and agreed to.

The Hon'ble SIR HENRY HARRISON also moved that the Bill, as amended, be passed.

The Motion was put and agreed to.

CALCUTTA PORT BILL.

His Honour the PRESIDENT said:—"Before adjourning the Council, I think I owe a few words to it in explanation of the omission from the list of business of the Ports Bill which had been originally entered in the list of business for discussion to-day.

"You will recollect that a fortnight ago we adjourned without considering it, in order that the Chamber of Commerce might have an opportunity of submitting a memorial, which we understood was in the course of preparation for our consideration.

"On Wednesday last, my friend, the Hon'ble Mr. Moore, told me he was afraid he would have to ask for another postponement in consequence of the absence of the Chamber's legal adviser. I asked him to see if the postponement could not be avoided, but I heard from him yesterday that he had been unable to get the memorial considered in time for us to take it up to-day, and he again asked for an adjournment. Upon that I took it on myself to exclude the motion from the list of business for to-day.

"Since then (yesterday) I received an application, which I think is in your hands, from the Secretary of the British Indian Association, which requests us that we will postpone for a fortnight the consideration of the Select Committee's report in view of the Committee laying before the Council some further representation regarding section 85.

"I may add that the Secretary says 'that the question of title in riverbanks having been treated by the Select Committee as one of general application, my Committee venture to hope that His Honour the Lieutenant-Governor will be pleased to recognize its importance by granting their prayer.'

"On this occasion I am very glad that we are able to meet their wishes without adding to the inconvenience of the Council, but I think I must protest against a body of the importance of the British Indian Association addressing us two days before the Bill is down for final consideration, asking us to postpone that consideration with reference to a point which has been discussed in all the newspapers since the issue of the report of the Select Committee which has been before them for five whole weeks, and regarding a section which has been the law of the land, with a slight alteration, for the last twenty years. I think it would be more respectful to the Council, and more conducive to public business, if they would take matters of that kind into their consideration a little earlier before the date of actual discussion in Council.

"On this occasion, as I said, I am very glad to be able to meet their wishes, but I do hope that, on Saturday fortnight, to which I propose to adjourn the Council, this Port Bill may be brought up for discussion and settlement."

The Council adjourned to Saturday, the 15th February, 1890.

CALCUTTA;
The 3rd February, 1890.

C. H. REILY,
Assistant Secretary to the Govt. of Bengal, Legislative Department.

EXTENSION OF THE BENGAL TENANCY ACT TO ORISSA.

REVENUE DEPARTMENT—LAND REVENUE.

Calcutta, the 24th January, 1890.

RESOLUTION.

READ—

A letter from the Commissioner of Orissa, No. 1850, dated 4th November, 1886, on the subject of the extension of the Bengal Tenancy Act to that Division.

A letter from the Board of Revenue, No. 975A, dated 17th December, 1889, with enclosures, regarding the arrangements to be made for the survey and settlement of Orissa.

THE Collector of Balasore recommended in 1885 that the Lieutenant-Governor should, in the exercise of the power vested in him by section 1, immediately extend the Bengal Tenancy Act of that year to Orissa. The proposal received no local support at the time, and was considered premature by this Government; but it has since been renewed in connexion with the survey and settlement of the Division which is now being taken in hand. The Director of the Department of Agriculture and Land Records has represented that the settlement laws now in force in Orissa, that is to say, Regulation VII of 1822 and Bengal Act VIII of 1879, read with Act X of 1859, do not supply an adequate machinery for adjusting rents, inasmuch as they do not require the ryots to question the Settlement Officer's proceedings till the record is completed, and that the procedure which they established has proved practically unworkable where it has been contested. He observes—

"In proceedings under Chapter X of the Tenancy Act, the case is otherwise. The Settlement Officer's decision has the force of a decree; it must be appealed against within 30 days of the date of the order, and the appeal lies to the superior court of a Special Judge. Settlement proceedings under Chapter X of the Tenancy Act have therefore a sanction and finality which do not attach to proceedings under Act VIII of 1879. Moreover, experience has shown that proceedings under Chapter X of the Tenancy Act, besides being final, can be worked harmoniously and satisfactorily. It appears to me, therefore, that Chapter X of the Tenancy Act should be extended to those portions of Orissa which are from time to time brought under survey.

"The extension of Chapter X to any particular area involves also the extension of the sections of the Act relating to the determination of the status of tenants and to the enhancement and reduction of rent, *i.e.* sections 19 to 38. As a record of rights will have to be made and fair rents settled under Chapter X, it is evident that the rules for determination of the status of tenants and determination of fair rents prescribed in the Act must also be followed."

There is also some reason to believe that if the most important portion of the Act is extended to Orissa, it will be convenient to introduce the law in its entirety. It is a question, however, whether the provisions as to preparing price-lists (section 39) and as to the payment of landlords' fees on transfers of tenures (sections 12 and 13) should not be excluded. The provisions as to judicial procedure and sales on decree (Chapters XIII and XIV) may, moreover, be found unsuitable to a province in which rent suits are still tried by Revenue officers.

2. The opinion of the Board and of the Revenue officers employed in Orissa is awaited on the subject; and, as the matter is of considerable public importance, the Lieutenant-Governor will be glad to receive any expression of opinion which may be offered by those interested. Such opinions should be transmitted to this Government before the 15th of April next.

ORDER.—Ordered that this Resolution be published in the *Calcutta Gazette* for the information of the public.

By order of the Lieutenant-Governor of Bengal,

P. NOLAN,
Secretary to the Govt. of Bengal.

THE CANAL REVENUE REPORTS FOR 1888-89.

No. 198 *I.A.*

Government of Bengal.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Dated Calcutta, the 3rd February 1890.

RESOLUTION.

READ—

The Canal Revenue Reports for 1888-89, and Chief Engineer's Note on same.

The outlay, direct and indirect, on canals in Bengal, for which capital accounts are kept, amounted at the close of the year 1888-89 to Rs. 7,15,56,843. Of this sum Rs. 6,05,42,061 is the amount spent on Major Irrigation Works and charged to Loan Funds; while the expenditure on Minor Works was Rs. 1,10,14,782, of which Rs. 93,75,327 was provided from Provincial revenues, Rs. 8,66,000 was the grant contributed by the Imperial Government from Famine Relief and Insurance Funds in aid of the construction of the Orissa Coast Canal, and Rs. 7,73,455, representing expenditure on surveys and investigations for irrigation works which have not been carried out, was provided from Imperial revenues, but is not now chargeable with interest.

On Major Works the capital outlay during the year was Rs. 7,92,776, of which Rs. 6,38,718 represents the progress made with the revised project for the Orissa Canals, and Rs. 1,51,340, the expenditure on the Sone system; that on Minor Works was Rs. 1,49,475, of which Rs. 1,01,306 was spent on the Orissa Coast Canal, now nearly completed and open to traffic throughout its length, and Rs. 47,862 on the Circular and Eastern Canals.

2. The length of the canals in Bengal now in operation is altogether 864 miles, of which 621 miles are navigable. The area which, in their present state of completion, they are capable of irrigating is 1,422,319 acres, and the area actually irrigated in 1888-89 was 574,216 acres, the crops raised on which are valued at Rs. 1,81,10,045.

The traffic is represented by 195,140 boats which plied on the canals with passengers or cargo, and measured 3,747,300 tons. These figures do not include the traffic on the Nuddea rivers, which were brought under the management of the Public Works Department at the commencement of the year. On these rivers the boats which paid toll were 48,224 in number, and were measured at 839,502 tons.

3. Receipts and expenditure are shown in the following statement, where the results of three years can be compared :-

	1888-89.		1887-88.		1886-87.	
	Receipts.	Expenditure.	Receipts.	Expenditure.	Receipts.	Expenditure.
Major Irrigation Works.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Orissa Canals	2,43,294	4,05,019	2,22,679	5,02,450	1,79,519	5,20,548
Midnapore Canal	2,51,510	2,09,804	2,33,925	2,50,396	2,33,974	2,35,038
Hidgellee Tidal Canal	55,097	78,040	41,858	66,976	53,494	22,735
Sone Canals	8,31,278	7,94,432	5,88,618	7,52,348	9,02,692	5,97,821
Total ...	13,81,179	14,87,295	10,87,080	15,72,170	13,69,679	13,76,137
MINOR WORKS AND NAVIGATION.						
Irrigation and Navigation Works.						
Sarun Canals	20,814	36,332	20,665	29,307	12,427	28,659
Calcutta and Eastern Canals ...	5,75,125	2,93,801	5,79,934	2,24,656	4,83,654	1,92,264
Orissa Coast Canal	66,174	77,018	53,837	83,507	29,488	61,426
Total ...	6,62,113	4,07,151	6,54,436	3,37,560	5,25,569	2,82,349
GRAND TOTAL ...	20,43,292	18,94,446	17,41,516	19,09,730	18,95,248	16,58,486

The net deficit on Major Works is Rs. 1,06,116 contrasting with deficits in 1887-88 of Rs. 4,85,090 and in 1886-87 of Rs. 6,458, while Minor Works shew incomes in 1888-89 of Rs. 2,54,962, in 1887-88 of Rs. 3,16,876, and in 1886-67 of Rs. 2,43,220. All irrigation works taken together shew a net income in 1888-89 of Rs. 1,48,846; but as interest charges payable to the Imperial Government on the capital spent on Major Works amounted to Rs. 23,39,849, the actual deficit to be met from Provincial revenues was Rs. 21,91,003.

4. The better results of 1888-89 as compared with 1887-88 have been mainly due to increased receipts, but the statement shews that considerable reductions of expenditure were also effected. In Orissa one great outlet of expenditure, the reconstruction of the two weirs which were partially overthrown by the floods of 1886, a work which for two years has been a heavy charge on the revenues of the Orissa Canals, is now happily closed. On the other hand, the ordinary maintenance charges of these canals are found to be higher than usual, a point to which the attention of the Superintending Engineer has been drawn in the Chief Engineer's Note. It seems probable, however, that, so long as the reconstruction of the weirs was in progress, expenditure on ordinary repairs was restricted to the more imperative requirements of the works, and more therefore had to be spent in 1888-89 in carrying out repairs which could be and had been postponed for a while. The cost of establishment chargeable against Revenue, which in 1886-87 was Rs. 5,16,714 for the works given in the table above, rose in 1887-88 to Rs. 7,21,376, an increase due not to greater extravagance in the establishment employed, but to the introduction of a new and fairer method of distributing establishment charges between Irrigation and Roads and Buildings. For 1888-89 the corresponding figure is Rs. 7,01,050, and the saving would have been greater but for an increase of Rs. 27,996 in the cost of establishments employed under Civil officers for the collection of revenue on the Orissa, Midnapore and Sone Canals, an increase which was due chiefly to the greater amount of work involved in realising the heavier collections. On the whole, therefore, there has been a substantial saving in the charges incurred for establishment on the maintenance and management of the canals. The occurrence of this saving can be traced chiefly to the increased amount of work carried out by the Irrigation staff on Roads and Buildings, and the consequent transfer of a larger share of establishment charges from the Irrigation to the Roads and Buildings Branch. Similarly the larger Capital expenditure in 1888-89, on works not chargeable to Revenue, has tended to relieve the canal Revenue account of a portion of its establishment charges.

5. The revenue collected in the last three years on the works mentioned in the above statement is shown below:—

Head.	Revenue		
	1888-89.	1887-88.	1886-87.
	Rs.	Rs.	Rs.
Water-rates	10,22,352	7,69,362	10,43,342
Navigation	9,74,105	9,21,482	7,88,685
Miscellaneous	60,298	66,838	80,171
Total ...	20,56,755	17,57,682	19,12,198
Less refunds of revenue	13,463	16,166	16,950
Net total receipts ...	20,43,292	17,41,516	18,95,248

6. The recovery of the revenue derived from water-rates from the depression of 1887-88 was assisted by the character of the irrigation season of 1888-89, which was such as to lead to a full appreciation of the value of canal water. On the Sone Canals, where collections had been to some extent suspended in consequence of the agitation of the previous year, the receipts rose from Rs. 5,19,586 to Rs. 7,59,556, and it is clear that the efforts of the managing staff to restore public confidence in the canals have been attended with success. Irrigation in Orissa also has received a fresh impetus, and the collections of 1888-89 are higher than those of any year since 1882-83, while on the Midnapore Canal, where no great development of irrigation can be expected owing to the limited and fluctuating character of the source of supply, there is a slight improvement on the results of 1887-88.

7. The activity of irrigation in 1888-89 is evident from the figures in the following table, where actual areas irrigated during the last three years are shown :—

		1888-89.	1887-88.	1886-87.
		Acres.	Acres.	Acres.
Orissa ...	Kharif	156,319	108,867	75,115
	Rabi	2,779	502	2,440
	Perennial	194	137	154
	Total ...	159,292	109,506	77,709
Midnapore ...	Kharif, including boro rice crop	69,777	65,864	69,762
Sone ...	Kharif	69,628	57,595	30,082
	Rabi	69,817	27,501	16,662
	Perennial	4,600	6,265	11,626
	Hot-weather	11,762	13,855	15,278
	Five-year lease ...	200,102	210,164	194,556
	Total ...	355,909	315,380	268,204
	Total Major Works ...	584,978	490,750	415,675
Sarun ...	Kharif	3,897	1,699	566
	Rabi, including hot-weather...	3,316	2,519	1,580
	Total Minor Works ...	7,213	4,218	2,146
GRAND TOTAL, MAJOR AND MINOR WORKS ...		592,191	494,968	417,821

8. The "earnings" of the year's work, of which the above table shows the extent, are as follows :—

	Water rates earned. 1888-89.
	Rs.
Orissa Canals	2,42,808
Midnapore Canal	1,31,433
Sone Canals	8,05,790
Sarun Canals	21,850
Total ...	12,01,881

These sums represent the whole of the liabilities incurred by cultivators on crops raised by canal water during the year. In previous years the definition of the word "earnings" has been restricted to the assessments, which were not only fully completed, but also legally recoverable within the year. Exact returns of "earnings" (in the wider sense of the word now adopted) are not available for previous years ; but owing to the extended use of canal water already noticed, the earnings of 1888-89 considerably exceed those of 1887-88 and 1886-87. This is in favour of good collections in 1889-90.

9. The arrears of water-rates outstanding at the close of each of the last three years are shown in the following statement :—

NAME OF CANAL.	ARREARS.		
	1st April 1889.	1st April 1888.	1st April 1887.
	Rs.	Rs.	Rs.
Orissa Canals	1,14,597	92,109	87,458
Midnapore Canal	84,773	56,493	50,749
Sone Canals	3,80,613	4,11,281	2,31,582
Sarun Canals	34,927	33,492	32,712
Total ...	6,14,910	5,93,375	4,02,501

NOTE.—The figures are those of the Examiner, Public Works Accounts ; but it is believed that they will require correction, since they do not agree with those given by the Superintending Engineer, which again differ from those of the Collector.

The reduction effected in the outstanding balances of the Sone Canals is less than the increments in the balances of the Orissa and Midnapore Canals taken together. The progress made with collections on each system can be compared as follows :—

	Percentage of current demand adjusted.	Percentage of arrear demand adjusted.
Sone Canals	60	80
Midnapore Canal	34	89
Orissa Canals	46	72

These results (except in the case of the Sone Canals) cannot be considered good, and it is again necessary to call the attention of district officers in Orissa and Midnapore to the steady growth of the arrear balances as a subject which demands early and energetic treatment.

10. In Navigation Receipts improved results are shown on all the lines except the Calcutta and Eastern Canals. There is reason to suppose that the income from this route, on which the traffic receipts are greater than on all the other canals of the province combined, is being unfavourably effected by the competition of the Central Bengal Railway. Under arrangements which existed before the construction of the railway, when the canals had a monopoly of the traffic, and which have not yet been altered, tolls are only collected at the Calcutta terminus of the boat-route; and the railway is thus enabled to tap the canal traffic before the latter has paid toll, and therefore at present competes with the canal at an advantage. The actual tollage collections for each system are given below for three years—

Year.	Orissa Canals.	Midnapore Canal.	Hidgellee Tidal Canal.	Orissa Coast Canal.	Sone Canals.	Calcutta and Eastern Canals.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1886-87	58,604	1,09,693	51,994	28,587	49,685	4,73,193	7,71,706
1887-88	66,628	1,20,574	40,406	52,828	50,084	5,71,872	9,09,292
1888-89	69,850	1,46,760	53,910	65,010	52,162	5,65,491	9,53,183

On the Nuddea rivers the collections fell from Rs. 1,98,318 to Rs. 1,91,749.

11. The number of complaints which came up for disposal during the year was altogether 14,710, of which 12,506 were complaints made during the year and 2,204 were old complaints left over for disposal from the files of the previous year—

	Orissa.		Midnapore.		Sone.		Total.	
	Number.	Percentage on cases disposed of.	Number.	Percentage on cases disposed of.	Number.	Percentage on cases disposed of.	Number.	Percentage on cases disposed of.
Pending from last year	1,503	.....	84	.....	615	.....	2,212	.....
Filed during the year	3,789	.....	1,647	.....	7,062	.....	12,498	.....
Total ...	5,292	.....	1,731	.....	7,687	.....	14,710	.....
Disposed of { Admitted	.....	.....	216	11·5	2,253	39·0	.....	.....
Disposed of { Dismissed	.....	.....	1,276	85·5	3,519	61·0	.....	.....
Total ...	4,110	100·0	1,492	100·0	5,772	100·0	11,374	100·0
Pending on 31st March 1889 ...	1,182	.....	239	.....	1,915	.....	3,336	.....
Area irrigated in 1888-89 ... Acres	169,292		59,777		335,909		564,978	
Proportion of acres irrigated to one complaint (current year only).	43·04		42·3		50·4		46·7	
Ditto for 1887-88 (including cases pending from previous years).	37·9		78·3		46·7		47·5	

The above table, which is an abstract of the information given in the various Revenue reports on the filing and disposal of complaints, is defective in the case of the Orissa Canals, where the Deputy Revenue Superintendent has failed to distinguish the claims admitted and those rejected. Also, since in the reports of 1887-88 current and pending complaints were taken together, it is impossible to exactly compare the work done in each year. As, however, the number of complaints, current and pending, in 1887-88 was 10,332, being in the ratio of 1 : 47·5 to the number of acres irrigated, while in 1888-89 the number of current complaints is 12,498 and the ratio 1 : 46·8, it is clear that not only was the number of complaints greater in the latter year, but the proportion of complaints with regard to the area irrigated has also risen. In the case of the Midnapore Canal that proportion has almost doubled—an unsatisfactory state of affairs which should have received attention in the reports of the officers responsible.

12. The number of certificates issued for the recovery of arrears has fallen from 28,805 to 19,536, and the number pending at the close of the year from 19,536 to 15,880—

	Pending at close of 1887-88.	Instituted during 1888-89.	Total.	Disposed of.	Pending at close of 1888-89.
Midnapore	5,310	11,201	16,511	9,326	7,185
Orissa	9,047	5,259	14,306	8,553	5,753
Sone	5,179	4,216	9,395	6,453	2,942
Total ...	19,536	20,676	40,212	24,332	15,880

The reduction in the cases pending has been effected entirely on the Sone and Orissa Canals, as in Midnapore there is a considerable and highly unsatisfactory increase, notwithstanding that the number of cases disposed of is actually higher than in either of the other systems. The percentage, however, of cases disposed of, as compared with the number pending and instituted, is not so good, the respective percentages being for Midnapore 56·5, Orissa 59·8, and Sone 68·7. Judging by the very large proportion of cases struck off compared with the total number disposed of in Midnapore, namely, 5,478, or nearly 59 per cent, it appears probable that sufficient care is not exercised in issuing these certificates, and that much unnecessary work is in consequence thrown on the officer who is trusted with their disposal.

13. The Lieutenant-Governor notes with satisfaction the names of the various officers to whom Colonel Harrison awards special praise, and he takes this opportunity, on Colonel Harrison's connection with the province being severed, of recording his acknowledgment of the excellent service rendered by him during his tenure of the office of Chief Engineer and Joint-Secretary, and of the admirable tact and judgment which Colonel Harrison has always displayed in administering the department confided to him.

ORDER.—Ordered that a copy of this Resolution, and of the Note and its accompaniments, be submitted to the Government of India, in the Public Works Department, for information; also that copies be forwarded to the Appointment, Revenue, and Financial Departments of this Government; the Board of Revenue, Lower Provinces; the Commissioners of the Presidency, Burdwan, Patna, and Orissa Divisions; the Collectors of the 24-Pergunnahs, Nuddea, Hooghly, Midnapore, Burdwan, Patna, Shahabad, Gya, Sarun, Cuttack, and Balasore; the Superintending Engineers of the Orissa, South-Western and Sone Circles; and Examiner, Public Works Accounts, Bengal, for information.

By order of the Lieutenant-Governor of Bengal,

C. W. I. HARRISON, *Lieut.-Col.*, R.E.,
Offg. Joint-Secy. to the Govt. of Bengal,
P. W. Dept.

Government of Bengal.

PUBLIC WORKS DEPARTMENT.

IRRIGATION BRANCH.

REVENUE REPORT.

Note by LIEUTENANT-COLONEL C. W. I. HARRISON, R.E., *Chief Engineer, on the Canal Revenue Reports for the year* 1888-89.

THE Capital expenditure on Irrigation Works, for which Capital accounts are kept, amounted during the year 1888-89 to Rs. 9,19,020 for direct and Rs. 23,231 for indirect charges—

	Direct charges.	Indirect charges.	Total.
	Rs.	Rs.	Rs.
Capital expenditure not charged against Revenue	7,74,547	18,229	7,92,776
Minor Works and Navigation, Provincial	1,44,473	5,002	1,49,475
Total ...	9,19,020	23,231	9,42,251

2. The total Capital outlay at the end of the year 1888-89, including indirect charges, was as follows:—

	Direct charges.	Indirect charges.	Total.
	Rs.	Rs.	Rs.
Major Irrigation Works.			
Productive Public Works. ...	5,88,83,503	16,58,558	6,05,42,061
Minor Works and Navigation.			
Protective grants—Imperial ...	8,66,000	...	8,66,000
Ordinary revenue { Imperial and Provincial } ...	98,67,297	2,81,485	1,01,48,782
Total ...	6,96,16,800	19,40,043	7,15,56,843

3. The above outlay is divided under the different projects in the following statement:-

Works.	During 1888-89.			To end of 1888-89.		
	Direct charges.	Indirect charges.	Total.	Direct charges.	Indirect charges.	Total.
Major Irrigation Works.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Orissa Canals ...	6,23,439	15,279	6,38,718	2,35,37,322	5,31,481	2,40,68,803
Midnapore Canal ...	2,665	53	2,718	82,66,010	1,83,711	84,49,721
Hidgellee Tidal Canal ...	...	...	...	17,95,489	44,807	18,40,296
Sone Canals ...	1,48,443	2,897	1,51,340	2,52,84,682	8,98,559	2,61,83,241
Total ...	7,74,547	18,229	7,92,776	5,88,83,503	16,58,558	6,05,42,061
Minor Works and Navigation.						
Tirhoot Project ...	...	...	...	5,31,425	74,650	6,06,075
Damoodah Project ...	(—)1,200	...	(—)1,200	1,51,141	16,239	1,67,380
Calcutta and Eastern Canals	47,862	1,507	49,369	52,27,428	61,057	52,88,485
Orissa Coast Canal ...	97,811	3,495	1,01,306	41,54,073*	1,02,356	42,56,429
Sarun Canals ...	...	...	...	6,69,230	27,183	6,96,413
Total ...	1,44,473	5,002	1,49,475	1,07,33,297	2,81,485	1,10,14,782
GRAND TOTAL ...	9,19,020	23,231	9,42,251	6,96,16,800	19,40,043	7,15,56,843

* Includes expenditure of Rs. 8,66,000 from famine protective grants.

REVENUE.

4. The total revenue receipts, working expenses and charges for interest in respect of the works which are classed as Major Irrigation Works during 1888-89, and four previous years, are shown in the following statement:—

PARTICULARS.	1888-89.	1887-88.	1886-87.	1885-86.	1884-85.
	Rs.	Rs.	Rs.	Rs.	Rs.
Receipts from all sources ...	13,81,179	10,87,080	13,69,619	15,74,272	12,99,876
Working expenses (direct and indirect charges)	14,87,295	15,72,170	13,76,137	11,98,291	12,27,414
Net revenue	(—)1,06,116	(—)4,85,090	(—)6,458	3,75,981	72,462
Charges for interest	23,39,849	23,13,446	22,91,006	22,66,710	22,29,979
Deficit	24,45,965	27,98,536	22,97,464	18,90,729	21,57,517
Rate per cent. on Capital outlay ...	4·04	4·68	3·88	3·23	3·72

INTEREST.

5. The total amount of interest payable to the Imperial Treasury on account of Major Irrigation Works for the year 1888-89 is Rs. 23,39,849.

FINANCIAL RESULTS.

6. The following statement shows the financial results of both Major Irrigation Works and Minor Works and Navigation, of which Capital and Revenue Accounts are kept, to the close of the year 1888-89:—

	Major Irrigation Works.	Minor Works and Navigation.
	Rs.	Rs.
Direct revenue	1,51,85,443	2,05,73,482
Working expenses (direct charges)	1,58,26,535	79,97,925
Results on direct charges only ... Loss ...	6,41,092	Profit ... 1,25,75,557
Indirect charges debitable to revenue ...	8,27,907	... 2,05,967
Results on both direct and indirect charges ... ... Loss ...	14,68,999	Profit ... 1,23,69,590
Charges for interest on Capital	3,40,63,927	Not calculated.
Net results, including interest to end of 1888-89 ... ... Loss ...	3,55,32,926	

Thus on Major Irrigation Works the net loss including interest is Rs. 3,55,32,926, or 58·69 per cent., of the gross Capital outlay, including all charges.

7. The financial results of Minor Works and Navigation, of which only revenue accounts are kept, are shown below:—

	Rs.
Direct revenue	78,22,208
Working expenses (direct charges)	42,44,206
Results on direct charges only ... ... Profit ...	35,78,002
Indirect charges debitable to revenue	2,21,813
Results on both direct and indirect charges ... Profit ...	33,56,189

EXPENDITURE.

8. The expenditure on, and receipts from, Irrigation, Navigation, and Agricultural Works during the year 1888-89, as compared with those of the year 1887-88, are shown below:—

EXPENDITURE.	1888-89. Rs.	1887-88. Rs.
42—Major Irrigation Works, Working Expenses—		
Provincial	14,87,295	15,72,170
43—Minor Works and Navigation—		
Irrigation and Navigation Works—		
Provincial	7,19,087	8,26,214
Agricultural Works—		
Provincial	7,83,156	7,17,359
Contributions	9,773	6,849
Total ...	7,92,929	7,23,208
49—Irrigation—Capital expenditure not charged against revenue	7,92,776	5,57,976
GRAND TOTAL ...	37,92,087	36,79,568

Receipts.	Rs.	Rs.
XXIX—Major Irrigation Works—Direct receipts—		
Provincial	13,81,179	10,87,080
XXX—Minor Works and Navigation—		
Irrigation and Navigation Works—		
Provincial	8,57,793	8,54,038
Agricultural Works—		
Provincial	9,733	8,606
Total ...	22,48,705	19,49,724

Receipts.

Note.—Commencing with the year 1888-89, "Refunds of revenue" are treated as reduction of receipts and not as charge against Working Expenses, and "Indirect charges" are shown in addition to direct charges under Working Expenses, in accordance with the suggestion contained in Government of India's letter No. 154*I*, dated 15th August 1889.

9. The areas irrigated during the year 1888-89 and the four preceding years, by the Major Irrigation Works, are shown in the following statement:— Area irrigated.

Year.	Orissa Canals.				Midnapore Canal.				Sone Canals.				Total.			
	Kharif.	Rabi.	Perennial.	Total.	Kharif.	Rabi.	Perennial.	Total.	Kharif, including five-year leases.	Rabi.	Perennial.	Total.	Kharif.	Rabi.	Perennial.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1888-89 ...	156,319	2,779	194	159,292	69,408	3,369	...	69,777	281,492	69,817	4,600	355,909	504,219	75,965	4,794	584,978
1887-88 ...	108,867	502	137	109,506	65,804	...	...	65,804	281,614	27,501	6,285	315,380	456,345	28,003	6,402	490,750
1886-87 ...	75,115	2,440	154	77,709	69,762	...	...	69,762	230,916	16,662	11,626	268,204	384,793	19,102	11,780	415,675
1885-86 ...	70,503	1,005	171	72,339	70,604	...	...	70,604	271,433	50,610	10,527	332,570	412,600	51,615	10,698	475,513
1884-85 ...	54,181	2,994	197	57,372	69,294	...	...	69,294	283,301	77,558	9,202	370,061	407,316	80,552	9,459	497,327

The year's working and its financial results will now be dealt with separately for each of the canal systems of the province.

ORISSA CANALS.

10. The Capital, Interest, and Revenue Accounts of these canals are given below:—

1.—CAPITAL ACCOUNT. Capital account.

Heads of account.	Outlay during 1888-89.	Outlay to end of 1888-89.
Direct charges.	Rs.	Rs.
I.—Works	4,88,452	1,69,03,279
II.—Establishment	1,06,375	43,03,670
III.—Tools and plant	15,043	20,01,555
IV.—Suspense accounts	21,307	1,46,525
Loss by exchange	...	2,68,070
Total ...	6,31,177	2,36,23,099
V.—*Less*—Receipts on Capital account ...	7,738	85,777
Net total direct charges ...	6,23,439	2,35,37,322
Indirect charges.		
Capitalization of abatement of land revenue ...	386	32,842
Leave and pension allowances	14,893	4,98,639
Total indirect charges ...	15,279	5,31,481

The capital outlay of 1888-89 shown in this statement represents the progress made with the works provided in the revised estimates of the Orissa Project. Owing to a slight scarcity of food-supply in the district, a more plentiful supply of labour was available than has been the case for some years, and the amount of earthwork carried out on canal and distributary banks, drainage works and protective embankments was more satisfactory. The additional lengths completed and the fresh areas brought under command, or provided with distributaries, will be shown in a later paragraph. The list of masonry works and buildings either put in hand or brought to completion also indicates a fair rate of progress during the year.

INTEREST ACCOUNT.

2.—INTEREST ACCOUNT.

			Rs.
Interest charges to end of 1887-88	...	...	1,28,54,084
Ditto for 1888-89	...	...	9,29,024
Total		...	1,37,83,108

REVENUE ACCOUNT.

3.—REVENUE ACCOUNT (Actuals).

	Expenditure.			Receipts	
	During 1888-89.	To end of 1888-89.		During 1888-89	To end of 1888-89.
	Rs.	Rs.		Rs.	Rs
DIRECT CHARGES.					
I.—Maintenance and Repairs.			Water-rates ...	1,51,365	16,87,867
			Navigation ...	77,908	10,64,564
			Miscellaneous ...	14,242	2,44,248
Works (extensions and improvements) ...	...	1,611	Direct revenue realized in England ...	...	38,686
Repairs ...	2,36,694	35,47,088	Total ...	2,43,515	30,35,365
Compensation ...	...	53			
Establishment, including direction and accounts ..	70,201	8,27,613	*Less*—Refunds of revenue ...	221	3,582
Tools and plant ...	21,156	2,14,313			
Profit and loss ...	...	640			
Total ...	3,28,051	45,91,351			
II.—Revenue management.					
Irrigation establishment ..	43,161	6,69,722			
Navigation establishment ...	15,734	1,75,731			
Total ...	58,895	8,45,453			
III.—Direct expenditure in England ...	...	6,945			
Total direct charges ...	3,86,946	54,43,749			
INDIRECT CHARGES.*					
Capitalized abatement of land revenue ..	...	...			
Leave and pension allowances ..	18 073	2,62,248			
Total Indirect Charges	18,073	2,62,248	Net total receipts	2,43,294	30,31,783
			Deficit ...	1,61,725	26,74,214
Total Working Expenses	4,05,019	57,05,997	Total ...	4,05,019	57,05,997

* These are now shown under the suggestion of the Government of India.

11. The income calculated on "earnings" of the year and expenditure are shown below:— EARNINGS.

Expenditure.	Amount.	Earnings.	Amount.
DIRECT CHARGES.	Rs.		Rs.
I.—Maintenance and repairs.			
Repairs	2,36,694	Water-rates	2,42,808
Establishment, including direction and accounts	70,201	Navigation	77,908
Tools and plant	21,156	Miscellaneous	14,242
Total ...	3,28,051	Total ...	3,34,958
II.—Revenue management.			
Irrigation establishment ...	43,161		
Navigation ditto ...	15,734		
Total ...	58,895	*Less*—Refunds of revenue ...	221
Total direct charges ...	3,86,946	Net earnings	3,34,737
Indirect charges	18,073	Deficit	70,282
Total working expenses ...	4,05,019	Total ...	4,05,019

By the orders of the Government of India, a change is now introduced in the method of calculating the amount of water-rates shown as "earned" in the above statement. Under the rules in force on the Orissa canals, a portion of the water-rates assessed in any year do not become legally due until the 1st May, and a further portion till the 1st June, of the following year. Hitherto, therefore, as explained in previous Revenue Reports, the earnings of each year have been calculated by excluding those instalments of the assessments which would not become due till the year following; but, on the other hand, including those instalments of the assessments of the previous year, which, though undoubtedly earned in that year, have only become due in the year under report. The amount thus arrived at has hitherto been shown in the statistical table IVC attached to each report as the amount of revenue assessed. In this and future reports, however, the 'earnings' of a year will be taken to mean the amount of the liabilities incurred by cultivators for water supplied during that year, without regard to the date on which those liabilities may become legally recoverable. The statement also now for the first time includes, on the expenditure side, indirect as well as direct charges. EARNINGS.

12. The lengths of the canals and distributaries in operation at the close of the year 1888-89, compared with 1887-88, are given in the statement following:— LENGTH OF CANALS

Name of Canal.	1888-89.								1887-88.							
	Navigable canals.	Canals for irrigation only.	Distributaries and village channels.	Area protected from flood.	Area under command.	Area provided with distributaries.	Area irrigated.	Percentage of area irrigated to area provided with distributaries.	Navigable canals.	Canals for irrigation only.	Distributaries and village channels.	Area protected from flood.	Area under command.	Area provided with distributaries.	Area irrigated.	Percentage of area irrigated to area provided with distributaries.
	Miles.	Miles.	Miles.	Acres.	Acres.	Acres.	Acres.		Miles.	Miles.	Miles.	Acres.	Acres.	Acres.	Acres.	
Kendraparah system. — Kendraparah ...	39	...	354½	129,421	101,110	92,582			39	...	348½	129,421	101,110	91,000		
Ditto extension	15	...	...	8,960	7,000	...			15	...	...	8,960	7,000	...		
Gobri (including extension.)	21	...	..	27,251	53,290	...	72,796	70·8	21	...	...	27,251	53,290	...	54,404	54·2
Pattamcoondee ...	...	47	33½	65,000	51,250	10,172			..	47	32½	63,000	51,250	9,387		
Taldundah system. — Taldundah ...	27	...	71½	19,520	15,250	15,250			27	...	71½	19,520	15,250	15,250		
Muchgoree ...	4	28	122½	44,928	97,057	41,600	40,891	71·0	4	15	122½	44,928	68,208	41,600	31,227	54·9
High Level Canal, Range I ...	33	...	131½	80,128	48,815	48,815	18,092	37·0	33	...	131½	80,128	48,815	47,760	15,312	32·0
Total Mahanuddee Series ..	139	75	713	375,808	378,772	208,419	131,279	62·9	139	62	706½	375,808	344,923	205,017	100,943	49·2
High Level Canal, Range II ...	12½	...	...	...	10,000		2,385	...	12½	...	...	...	10,000	...	901	...
Ditto, Range III...	19	..	47½	...	57,500	42,500	25,628	60·3	19	..	11½	...	57,500	21,770	7,662	35·0
Jajepore Canal	0¼	...	...	...	70,000	...	..	..	...	...	...	...	...	...	...	...
Total Brahmini-Byturni Series ...	32	...	47½	...	137,500	42,500	28,015	65·9	31½	...	11½	...	67,500	21,770	8,563	39·3
Total Orissa Canals ...	177	75	760½	375,808	511,272	250,919	159,292	63·4	170½	62	718	375,808	412,421	226,787	109,506	48·2

There has been an increase of 6½ miles in the length of canals intended for the purposes both of irrigation and navigation, and of 13 miles in the length of those to be used for irrigation only. The former increase is due to the completion of the Jajepore Canal in the Brahmini-Byturni Series, which was opened for traffic in the month of August 1888, and the latter to the completion of the Machgong Extension Canal in the Mahanuddee Series, as far as the 32nd mile, up to which point it has been filled with water.

There has been no increase in the length of village channels, and none are in progress upon any of the canals, but the length of distributaries has increased during the year to the extent of 42½ miles, of which 6¾ miles are on the Kendrapara and Pattamoondi Canals, and 35¾ miles on the High Level Canal, Range III, where the whole length of distributaries proposed to be constructed has been completed with the exception of about two miles of main distributary, and a few minor branches required for affording irrigation to the high ground near the Main Canal and the Orissa Trunk Road. The area protected from flood remains the same as it was in the previous year, as the Daib embankment has not yet been fully completed, but there is an increase of 98,851 acres in the area under command in consequence of the completion of that portion of the Machgong Extension Canal which lies above the 32nd mile, and of the Jajepore Canal, the former of which has added 28,851 acres, and the latter 70,000 acres to the area commanded. The area provided with distributaries has also increased to the extent of 24,132 acres, of which 3,402 acres, are on the Kendrapara, Pattamoondi and High Level, Range I, canals of the Mahanadi Series, and 20,730 acres, on the High Level Canal, Range III, of the Brahmini-Byturni Series.

RAINFALL.

13. The rainfall of the year 1888-89 and of the previous year in the Cuttack and Balasore districts is given in the Statistical Table No. IVE. In both districts the total fall registered is very nearly the same as that registered in 1887-88.

The average rainfall at the thirteen stations situated within the area commanded by the Orissa canals for nineteen years is 55·18 inches, whilst the fall of the year at the same stations was 47·94, or 7·24 inches below the average.

From the statement of rainfall at the eleven stations in the upper districts drained by the Mahanadi, which has been supplied by the Superintending Engineer, it appears that the average fall during the year under review was 43·08 inches against 52·18 inches of the year 1887-88, showing a decrease of 9·10 inches. The average for the last seven years up to and including 1887-88 was 46·22 inches, so that the fall of the year under review is somewhat below the average.

From the table below, which gives the average rainfall observed during the kharif and rabi months during the last seven years at thirteen stations within the tract irrigated by the Orissa canals, it is evident that the kharif rains, though on the whole more plentiful than usual, were unequally distributed, a very short fall being registered in July and October, while that of August was unusually large. The deficiency in October was, however, partly made up by an increase in November, when the quantity registered was 2·01 inches in excess of the fall of the previous year :—

		AVERAGE OF THIRTEEN STATIONS.					
		1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Kharif season ...	July ...	13·03	9·58	10·68	10·05	11·67	8·91
	August ...	9·69	7·45	10·44	9·86	8·49	21·61
	September ...	9·77	11·29	10·08	14·66	6·12	8·36
	October ...	1·78	5·06	4·84	6·87	2·69	1·11
	Total ...	34·27	33·38	36·04	42·04	28·97	39·99
Rabi season ...	November ...	0·15	0·23	1·26	1·56	0·87	2·88
	December ...	1·53	0·07	1·20	0·45	...	...
	January ...	0·09	0·15	0·39	0·48	1·70	0·06
	February ...	1·58	2·63	0·05	...	1·26	0·81
	Total ...	3·35	3·08	2·90	2·49	3·83	3·75
	Whole year ...	57·18	50·42	51·49	60·05	47·79	49·07

The amount of rain and its distribution among the canals of the Orissa system is given in the following statement which covers the last five years:—

Year.	Mahanuddee Series.									Brahminee-Byturnee Series.					
	Kendraparah system.			Taldundah system.			High Level Canal, Range I.			High Level Canal, Range II.			High Level Canal, Range III.		
	Kharif.	Rabi.	Whole year.	Kharif.	Rabi.	Whole year.	Kharif.	Rabi.	Whole year.	Kharif	Rabi.	Whole year.	Kharif.	Rabi.	Whole year.
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
1884-85	35·65	4·75	54·75	29 52	2·15	47·85	32·24	2·45	52·15	31·78	2·94	46·24	30·24	2·80	48·34
1885-86	34·50	1·82	53·64	36·44	2·82	50·42	31·63	3·14	49·88	34·14	2·64	55·41	30·20	2·60	55·27
1886-87	39 97	2·66	63·59	42·66	3·97	64·70	41·67	1·53	63·10	44·02	1·48	62·18	42·72	2·03	64·79
1887-88	28·93	3·74	49·35	28·59	3·30	46·00	26·48	1·93	44·77	27·98	2·49	47·04	30·15	3·26	52·83
1888-89	37·07	3·28	65·50	44·39	4·54	53·28	38·78	1·93	44·64	42·72	2·37	51·18	44·56	2·87	53·50

IRRIGATION.

14. The following statement shows the areas irrigated and yearly rainfall since the year 1879-80:—

Year.	Kharif.	Rabi.	Perennial.	Total.	Rainfall.
	Acres.	Acres.	Acres.	Acres.	Inches.
1879-80	105,186	3,616	236	109,038	60 85*
1880-81	112,171	4,877	173	117,221	85·10*
1881-82	126,611	5,403	264	132,278	56·92†
1882-83	128,530	4,100	398	133,028	59·03†
1883-84	47,035	1,381	344	48,760	57·21†
1884-85	54,181	2,994	197	57,372	50·40†
1885-86	70,563	1,605	171	72,339	52·59†
1886-87	75,115	2,440	154	77,709	60·07†
1887-88	108,867	502	137	109,506	47·84†
1888-89	156,319	2,779	194	159,292	47·94†

* Mean of observations in Cuttack and Marsaghai.

† Ditto ditto at 13 stations throughout canal-irrigated area.

The spread of kharif irrigation has again been very marked, as the area which has taken water during 1888-89 is greater by 47,452 acres than the irrigated area of 1887-88, and greater by 27,789 acres than the irrigated area of any year since the construction of the canals. The partial failure of the July rains and the drought in October were the main causes which brought about this result.

To compare with 1887-88, of the increase of 47,452 acres in kharif irrigation, 18,019 acres are contributed by the High Level Canal, Range III, where the rate of increase is as much as 241 per cent., and 16,257 acres by the Kendraparah Canal. All the canals, however, show improved results, the lowest rate of increase being on the High Level Canal, Range II, where it was 18 per cent. Of the 2,227 more acres of rabi irrigated, 2,114 acres represent the increase on the Kendraparah Canal.

The whole area of all crops irrigated, being 159,292 acres, bears a ratio of 63 per cent. to the area under command of distributaries, already given as 250,919 acres. The ratio by canals is as follows:—

	1887-88.	1888-89.	Increase.
Kendraparah system	54·2	70·8	16·6
Taldundah ditto	54·9	71·0	16·1
High Level, Range I	32·0	37·0	5·0
High Level, „ II	No distributaries.		
High Level, „ III	35·0	60·3	25·3

15. The whole of the irrigated area was assessed. The figures below show the method of assessment alongside of the figures of the two preceding years for purposes of comparison:—

		1888-89.	1887-88.	1886-87.
		Acres.	Acres.	Acres.
Kharif	Five-year leases ...	152,282	102,868	75,606
	Annual leases ...	57	37	68
	Unauthorized irrigation ...	3,981	5,975	1,354
Rabi	... ...	2,779	501	2,430
Perennial	... Sugarcane	193	130	149
Total, including unauthorized irrigation	...	159,292	109,506	77,709
Total, excluding unauthorized irrigation	...	155,311	103,531	76,355

It is observed, however, that though the figures used in the statements in this and the preceding paragraphs, which give a total of 159,292 acres as the area irrigated, are those adopted by the Superintending Engineer throughout his report of the year's operations, yet it is stated that the area actually under lease at the close of the year was 146,046 acres only. The difference thus observable between the area irrigated and that leased is described by the Superintending Engineer "as due to the areas provisionally entered in the leases of some of the canals, the lands commanded by which have not as yet been cadastrally surveyed, having been smaller than they were afterwards found to be when the measurements of the area actually watered came to be made." And the Deputy Revenue Superintendent summarises the results of the year as follows:—

	Rs.
Area leased and assessed during the year	1,30,258
Unauthorized irrigation	3,981
Assessed area of which measurements were completed after the close of the year	25,053
Total ...	1,59,292

1888-89, AN ANXIOUS PERIOD FOR THE PROSPERITY OF THE CANALS.

16. With the close of the year 1882-83 ended the first period of five-year leases which had been introduced in these canals in 1878-79; and since during that period it was deemed desirable to cause all the leases to end at the same time, with a view to permitting of an alteration of the rate simultaneously over the whole of the Orissa system. Should such alteration be considered advisable, all the leases given subsequently to 1878-79 were given nominally for five years, that is to say, at the five-year lease rate, but they really expired simultaneously on the 31st March 1883. With 1883-84 therefore commenced a new period of five years, and the year happening to be one somewhat favourable to canal irrigation, a considerable area was leased, all the leases for which lapsed on the 31st March 1888, causing the year under review to be opened with a leased area of 45,716 acres only. Up to the end of June very few fresh leases had been entered into, and matters began to wear a serious look so far as the interests of the canals were concerned; and it was not until the demand for canal water arose in July that any good start was made. During that month and August, notwithstanding the heavy rain at the close of the latter month, leases were obtained for some 43,000 acres of either new irrigation or renewals of old leases. A small increase in September and the drought in October added some 40,000 acres more, bringing the total by the end of November to about 131,000 acres. Subsequent measurement and the correction of estimated areas in the leases eventually raised the area to that given above.

RANGE I, HIGH LEVEL CANAL, A SPECIAL CAUSE FOR ANXIETY.

Range I of the High Level Canal was the subject of special anxiety, since leases for no less than 13,000 acres out of the 14,605 acres shown as leased in 1887-88 lapsed at the close of that year. It was feared that many of the leases would not be renewed, but the scantiness of the rainfall in October had a most marked effect, and the area now leased is larger than it has been in any previous year.

17. At first sight the area now reached seems to lead to the conclusion that all the land under lease at the end of 1882-83 had now been re-leased. Such, however, is not the case, and dates given in the Superintending Engineer's Report show that though the area leased up to the end of 1888-89, viz. 146,046 it is fairer to take this figure than 159,292 acres, since the latter is the result of careful measurement which was wanting in 1882-83), is 13,018 acres more than the area leased up to the close of 1882-83, yet that, if the areas by canals be compared, it appears that even if none of the leases on the older canals be for entirely fresh irrigation, *i. e.*, for land which had not been irrigated up to 1882-83, a considerable area of lapsed irrigation has still to be recovered, the increase of 13,018 acres being practically wholly due to increase in the High Level Canal, and especially Range III thereof. The remaining canals have not yet recovered the depression which followed the expiry of the first set of five-year leases as will be seen from the following table:— LAPSED IRRIGATION STILL TO BE RECOVERED.

Name of Canal.	Area leased.		More.	Less.
	1888-89.	1882-83		
	Acres	Acres.	Acres.	Acres.
Kendrapara, including Gobri	53,867	60,374	...	6,507
Gobri Extension	1,499	...	1,499	...
Pattamoondi	10,549	12,094	...	1,545
Taldundah	10,285	10,719	...	434
Machgorig	27,241	34,012	...	6,771
High Level Ranges I and II	19,162	14,244	4,918	...
Ditto Range III	23,443	1,585	21,858	...
Total ...	146,046	133,028	28,276	15,257

18. It is clear from what has been said above that the Orissa Canals are very dependent on the nature of the season at a critical period for their prosperity; and there is no doubt but that, from the point of view of canal interests only, the drought of October 1888 was the most opportune occurrence that could have taken place, inasmuch as it happened just as the former leases had expired and there was no interval during which the cultivators might have come to think that they could do without canal water and to doubt whether it was to their interest to insure their lands against drought by a small yearly payment. The drought made them thoroughly appreciate the benefits of canal irrigation; and, as a matter of fact, it was in the real interests of the cultivators themselves that no such interval should occur; for nothing but continuous irrigation will enable them to be prepared with the means and method of irrigating with success and with universal benefit when drought really comes. THE DROUGHT OF 1888-89 VERY BENEFICIAL IN EVERY WAY.

19. The information regarding five-year leases is not sufficiently exact to permit of a correct conclusion being formed as to how the area under five-year leases is progressing, especially whether lapsed leases are being renewed. It would be as well if this point were properly taken up by the Superintending Engineer and Deputy Revenue Superintendent in their reports for the year now in progress, since the renewal of leases will be a better proof than anything else that the Ooriya is at last taking kindly to canal irrigation. RENEWALS OF LEASES.

20. At the commencement of the year under review the accounts showed an unrealized balance of Rs. 96,567, of which Rs. 92,110 was for water-rates, and Rs. 4,457 for miscellaneous revenue. The additional assessments which fell due within the year on account of previous years, as well as the year under review, came to Rs. 2,04,535, of which Rs. 1,96,765 was for water-rates. Thus, including arrears, the gross amount, which was liable to be collected during 1888-89, was Rs. 3,01,102, of which Rs. 1,60,328 was realized and Rs. 24,003 either remitted or written off as irrecoverable. Accordingly, the year closed with an unrealized balance of Rs. 1,16,771, of which Rs. 1,14,597 was for water-rates. ASSESSMENT AND COLLECTIONS.

This balance is larger than that at the end of the previous year. The increase is due, in a great measure, to the large increase on the assessments during the year. The outstanding balances, however, include considerable demands on account of irrigable but unirrigated beali rice lands—a class of lands which, in cases where beali rice is the only crop grown on them, it has now been decided to strike out of the assessments of the blocks in which they are situated. The outstandings, therefore, will undergo some reduction when these

orders are carried into effect, as well as from the remission recommended by the Deputy Revenue Superintendent, of submerged and damaged leased areas, till now assessed at full rates. The actual realizations during the year, though larger than those of the previous five years, would have been much better, but for the damage to crops caused by drought and abnormal cyclonic weather. The attention of the Deputy Superintendent has, however, been drawn to the steady increase in the outstanding balances, and he has been requested to submit a special report on the measures he would propose for the reduction of these arrears, and on what hopes may be entertained of effecting the reduction at an early date. A detailed account of the balances is given below:—

Year in which amount fell due.	Water-rates.	Miscellaneous.
	Rs.	Rs.
1881-82	327	76
1882-83	108	246
1883-84	435	456
1884-85	1,123	476
1885-86	2,642	458
1886-87	8,040	463
1887-88	32,907	...
1888-89	69,015	...
Total arrears ...	1,14,597	2,175

21. The results of the year as regards water-rate collections are shown below:—

	Outstandings of all years up to and including 1887-88.			Demands due in 1888-89 for the irrigation of that year.		
	Rupees.	Percentage of demands outstanding on 31st March 1889.	Rupees.	Rupees.	Percentage of demands for the year.	Rupees.
Outstandings to end of 1887-88, with assessments made in 1888-89 ...	...	100·0	1,61,837	...	100·0	1,27,033
Adjustments made in 1888-89 ... { Collections ...	93,402	57·7		57,963	45·6	
Adjustments made in 1888-89 ... { Remissions ...	22,851	14·1		62	0·04	
Total adjustments ...	...	71·8	1,16,253		45·7	58,025
Outstanding on 1st April 1889 ...	...	28·1	45,584		54·3	69,013

The percentage of adjustment for old outstandings is 71·8 against 73 6 of the last year, but that for the current demand is 45 7 against 45·1. The proportion of remissions is greater, being 14·1 against 5·7; it was mentioned in last year's report that considerable remissions would have to be made. So far as current demands are concerned, the percentage is the same in both years, being 0·04. The percentage of balances of old arrears still remaining to be collected at the close of the year has risen from 26·4 to 28 1, but the collection of the current year compares favourably with that of the year previous, as the unrealized percentage has fallen from 54·9 to 54·3.

Complaints.

22. The number of complaints received and the progress made in settling them is shown below:—

	Number pending from last year.	Number filed during year.	Total.	Disposed of during year.	Balance left pending.
Complaints against assessments	1,503	3,789	5,292	4,110	1,182
Miscellaneous	129	887	1,016	957	59
Total ...	1,632	4,676	6,308	5,067	1,241

The diminution in the arrears is satisfactory, and it is stated that all complaints arising out of the assessment of unauthorized irrigation have been disposed of as far as the Canal Revenue office is concerned. The number of new complaints was swollen by applications based on the recent orders of the Bengal Government regarding the remission of beali lands in five-year blocks, and by hose relating to fully assessed lands which had been damaged by inundation.

23. The Superintending Engineer thus compares the kharif duties obtained from the several canals with those obtained in the previous year:— DUTY OF WATER.

NAME OF CANAL.	Rainfall during the kharrif season.		Duty of quantity entering canal per cubic foot.		Duty of quantity utilised per cubic foot.	
	1888-89.	1887-88.	1888-89.	1887-88.	1888-89.	1887-88.
	Inches.	Inches.	Acres.	Acres.	Acres.	Acres.
Kendraparah Canal System ...	37·07	28·93	92·48	67·39	100 25	71·42
Ditto Canal	36·65	25·59	86·22	89·38	97·92	93·77
Pattamoonda do.	41·19	33·10	84·04	30 20	119·16	37·73
Gobri do.	37·91	25 63	92 33	41·36	99·81	81·62
Taldanda Canal System ...	44 39	28·59	82·60	79·60	217·40	98·70
High Level Canal, Range I ...	38 78	26·48	70·73	57·02	112·03	77·72
Ditto ditto, II ...	42·72	27·98	30 99	40·05	80 99	74·24
Ditto ditto, III ...	44·56	30·15	200·07	64·67	200·07	64·67

So that, except in the case of the High Level Canal, Range II, a higher average duty for the whole season was obtained; a natural consequence of the greater rainfall. In the case of the exception noted, a very high discharge was passed into this canal during October, partly in order to raise the level of the pool above the Byturni weir, for the purpose of benefiting the irrigation on Range III, but principally in order to facilitate irrigation from Range II by raising the level of the water. In the return of the Executive Engineer the whole of this discharge was represented as having been utilised, which, as the Superintending Engineer points out, can hardly have been the case. In future, care will be taken to show the quantity utilised by deducting the discharge at the outfall of the canal into the Byturni river.

During October, when the demand for irrigation was at its highest, and great pressure was brought on the canals, the average duty obtained was 53·48 acres per cubic foot entering the canals, and 60·32 acres per cubic foot utilised.

24. During the year 256 experiments on the outturn of crops were made, half on irrigated and half on unirrigated lands. On lands irrigated during 1888-89, the average weight of paddy per acre is 16·23 maunds and of straw 20 12 maunds, against 16·83 and 25·62, which are the respective averages of the five previous years. On unirrigated lands the figures for the year are 11·02 maunds of paddy against 12·46 maunds obtained in previous years, and 14·02 maunds of straw against an average of 19·05. The average yield per acre during the year therefore from irrigated as well as from unirrigated lands, though greater than it was in 1887-88, must both for grain and straw be considered but moderate. CROP EXPERIMENTS.

The difference in favour of irrigation, as shown by these experiments, is 5·21 maunds per acre in grain and 6·10 maunds in straw, the figures obtained from the averages of previous years being 4·37 and 7·57 respectively.

25. The cost of revenue establishment of the year was Rs. 43,161. The following statement shows the details of the year under review with those of the three previous years:— REVENUE ESTABLISHMENT.

	1888-89.	1887-88.	1886-87.	1885 86.
Establishment under Collector.	Rs.	Rs.	Rs.	Rs.
Superior officers and permanent and temporary establishment, including travelling allowance	31,389	28,749	26,007	24,028
Contingencies	2,889	2,218	2,625	1,948
Headmen's fees	1,680	2,208	1,209	1,229
Establishment under Executive Engineer.				
Permanent and temporary establishment ...	3,052	2,964	2,942	2,854
Contingencies	...	...	...	...
Water-regulation establishment ...	4,151	4,161	4,222	4,245
Total ...	43,161	40,300	37,005	34,304
Collections of water-rates and miscellaneous revenue by the Canal Revenue Department	1,60,328	1,46,039	1,05,775	1,16,940
Percentage ...	26·9	27·6	34·98	29·3

26. The management of the navigation of the canals and the collection of the revenue from this source is in the hands of the engineering staff. The NAVIGATION.

receipts, which are tabulated in statistical table ID, include tolls collected on boats and rafts using the canals, and the earnings of the transport service maintained by Government between Bhuddruck on the High Level Canal and Cuttack, a distance of 74 miles. The collections from tolls and transport service for the last ten years are shown below:—

	Tolls.	Transport service.	Total.
	Rs.	Rs.	Rs.
1879-80	62,389	35,686	98,075
1880-81	41,297	30,105	71,402
1881-82	53,219	29.987	83,206
1882-83	66,736	41,737	1,08,473
1883-84	61,602	48,550	1,10,152
1884-85	52,784	27,018	79,802
1885-86	64,093	19.919	84,012
1886-87	58,664	8,384	67,048
1887-88	66,628	4,376	71,004
1888-89	69,830	8,078	77,908

The cost of the establishment employed in collecting tolls during the year was Rs. 9,474, or Rs. 319 in excess of the previous year, due partly to the opening of the Jajepore Canal for traffic in August 1888, on which Rs. 156 was incurred, and partly to the Toll Collector at the Jumboo lock of the Kendrapara Canal having been employed there for a complete year instead of only for a portion of a year, as was the case in 1887-88.

TRAFFIC. 27. The following statement compares the traffic (excluding the transport service) of all the canals in Orissa during the year under review with that of the previous year:—

CANALS.	Miles open.	Tollage on boats and rafts.		Number of boats plying cargo and passengers.		Tonnage of cargo and passenger boats.		Value of cargo and rafts.		Tollage per mile of canal.	
		1888-89.	1887-88.	1888-89.	1887-88.	1888-89.	1887-88.	1888-89.	1887-88.	1888-89.	1887-88.
	No.	Rs.	Rs.	No.	No.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.
Taldundah and Machgong Canals ...	31	4,310	6,267	926	1,430	25,280	44,566	1,02,110	99,605	139·0	202·1
Kendraparah and Gobri Canals (including extension) ..	75	53,786	46,650	5,160	5,011	81,677	83,718	34,18,030	30,11 925	717·1	622·1
High Level Canal, Range I	83	6,642	8,306	2,058	2,975	22,080	24,118	6,28,530	8,76,100	201·3	251·7
Ditto, ditto II	14½	3,392	4,085	1,542	1,905	16,732½	17,378	2,85,812	3,71,472	271·4	326·8
Ditto, ditto III	19	1,601	1,311	786	673	7,394½	6,216	1,30,472	1,22,511	84·3	69·0
Jajepore Canal*	6½	99	..	103	...	534	...	24,003	...	15·2	...
Total ...	177	69,830	66,628	11,475	12,094	153,674	175,996	45,99,957	50,38 603	394 5	390·7

* This canal was opened to traffic on the 11th August 1888.

This return only takes count of laden boats, of which there is a decrease both in number and tonnage. Of empty boats, on which reduced tollage rates are charged, the number which made voyages is 1,473 more than last year. The gross receipts from tollage are accordingly greater by Rs. 3,202, the total number of boats by 864, and the total tonnage by 30,267 tons. There is a decrease in rafts. Moreover, as the receipts from Government traffic have declined by Rs. 3,183, or 36 per cent., in consequence of the completion of the public works for which materials were boated in the previous year, the general traffic by private boats on the whole shows improvement, for though the actual weight of cargo, as exhibited in statistical table IID, appears to have slightly declined, the data on which that table is based cannot be depended on for accuracy. The classes of goods which show increases are grain, piece-goods, and building materials, while metals and salt have declined.

The number of passengers carried has increased by 10,015, being 17·21 per cent. in excess of the number who travelled in the year previous.

The fluctuations on the various canals are considerable. The increase on the Kendraparah Canal is larger by 7,319 than the decrease which occurred in 1887-88, so that the passenger traffic on this canal appears to have completely recovered from the temporary depression ascribed to the loss of the two ocean passenger steamers running between Calcutta and Chandbali; but the passenger traffic of the High Level Canal although increasing has not yet recovered itself. On the Taldandah Canal there is a still greater decrease than there was last year due to the same cause apparently, viz., that the passengers are not carried the short distance from the head of the canal at Jobra to the canal bridge situated on the crossing of the Pilgrim road.

28. The transport service maintained by Government between Bhuddruck and Cuttack was worked at a loss of Rs. 4,585 as against a loss of Rs. 5,712 in 1887-88. The number of passengers and the weight of goods carried were about double what were carried in 1887-88, but the line was worked at an increased cost of Rs. 3,383, steamers instead of accommodation boats being employed. TRANSPORT SERVICE.

29. The miscellaneous receipts during the year under review are compared by sub-heads with those of the previous year in the following statement:— MISCELLANEOUS RECEIPTS.

SOURCE OF REVENUE.	YEAR IN WHICH RECEIVED.		DIFFERENCE.	
	1888-89.	1887-88.	Increase.	Decrease.
	Rs.	Rs.	Rs.	Rs.
Plantations	1,450	1,131	319	...
Rent of lands	5,857	5,678	179	...
Canal produce	895	377	518	...
Rents of buildings	4,855	5,000	...	145
Sale of old materials	31	...	31	...
Fisheries	877	768	109	...
Sale of water	41	96	...	55
Miscellaneous	236	1,121	...	885
Total ...	14,242	14,171	1,156	1,085

30. The revenue receipts and working expenses of the Orissa canals for the last ten years are shown in the following statement:— FINANCIAL RESULTS.

PARTICULARS.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.
RECEIPTS.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Water-rates	1,57,747	1,78,047	1,24,290	1,80,325	1,11,856	51,245	1,06,842	96,070	1,37,869	1,51,365
Navigation	98,075	71,402	83,206	1,08,473	1,10,182	79,302	84,012	67,048	71,004	77,808
Miscellaneous	23,365	20,329	15,655	31,212	15,860	12,538	16,496	15,587	14,171	14,242
Total ...	2,79,187	2,69,778	2,23,151	3,20,010	2,37,898	1,43,085	2,07,350	1,79,611	2,23,044	2,43,515
Less—Refunds of revenue ...	512	777	414	385	68	78	6	92	365	221
Net total receipts ...	2,78,675	2,69,001	2,22,737	3,19,625	2,37,800	1,43,507	2,07,344	1,79,519	2,22,679	2,43,294
WORKING EXPENSES.										
Direct charges.										
I.—Works, maintenance and repairs—										
Works (extensions and improvements) ...	208	...	...	...	...	...	...	...	...	...
Repairs	2,58,450	1,99,554	2,17,753	2,22,431	1,89,617	2,03,137	2,22,690	3,52,701	3,10,990	2,36,094
Establishment, including direction and accounts	51,916	45,896	50,108	51,160	48,600	50,058	51,109	51,117	68,153	70,201
Tools and plant ...	8,380	12,266	13,348	14,923	11,202	15,167	19,159	15,480	16,391	21,156
Direct expenditure in England	1,965	1,262	1,930	2,001	427	...	...	...	...	...
Total ...	3,20,920	2,58,978	2,83,139	2,90,575	2,44,946	2,69,262	2,93,048	4,40,364	4,25,524	3,28,051
II.—Revenue management—										
Irrigation establishment	35,704	36,613	37,022	37,002	33,432	33,999	34,304	37,065	40,300	43,161
Navigation establishment	8,153	7,561	8,085	13,578	14,681	12,398	15,219	15,471	15,123	15,734
Total ...	43,947	44,313	45,107	50,580	48,113	46,397	49,523	52,476	55,425	58,895
Total direct charges ...	3,67,897	3,05,291	3,28,246	3,41,155	2,93,049	3,15,659	3,42,571	5,01,840	4,80,949	3,86,946
*Indirect charges.**										
Capitalised abatement of land revenue,	...	...	...	...	...	...	...	...	...	...
Leave and pension allowances	17,047	15,889	16,407	13,741	12,840	13,629	14,101	18,703	21,501	18,073
Total indirect charges ...	17,047	15,889	16,407	13,741	12,840	13,629	14,101	18,703	21,501	18,073
Total working expenses ...	3,84,814	3,21,180	3,44,653	3,54,896	3,05,889	3,29,288	3,56,672	5,20,543	5,02,450	4,05,019
Net revenue (deficit) ...	1,05,639	52,179	1,21,916	35,271	68,089	1,85,781	1,49,328	3,41,024	2,79,771	1,61,725

* Indirect charges are now, by the suggestion of the Government of India, included in this statement of financial results.

It will be noticed that the deficit which was so great in the years 1886-87 and 1887-88 has now been reduced to one comparable with the years 1884-85 and 1885-86, owing chiefly to the absence of expenditure on account of the breaches in the Mahanadi weir, but also to an improvement in the receipts. If the earnings of the two years 1887-88 and 1888-89, be compared, the deficit of Rs 2,45,842 is found to be reduced to Rs. 70,282; but it must be remembered that, in addition to the causes given above, in the former year the assessments did not include amounts not legally due until after the close of the year, whilst such are included in the year under review.

MAINTENANCE. 31. The outlay on maintenance, exclusive of that on the transport service which amounted to Rs. 6,403, during the year under review and the two preceding years is distributed under the sub-heads as follows:—

	1888-89.	1887-88.	1886-87.
	Rs.	Rs.	Rs.
Head works	71,168	1,94,272	2,34,500
Main canals	1,11,712	76,219	83,735
Distributaries ...	31,451	25,594	21,458
Drainage and protective works ..	15,960	10,778	6,690
Total	2,30,291	3,06,863	3,46,383

HEAD WORKS. Out of a total expenditure of Rs. 71,168 on head works, Rs. 62,796 represents the cost of maintaining the weirs, divided as follows:—

NAME OF WEIR.	Length.	EXPENDITURE.		RATE PER RUNNING FOOT.	
		1888-89.	1887-88.	1888-89.	1887-88.
	Feet.	Rs.	Rs.	Rs.	Rs.
Narajo	3,833	10,140	26,106	2·64	6·81
Mahanadi	6,349	26,539	1,32,941	4 18	20·93
Beropa	1,980	5,573	5,015	2·81	2·53
Brahmini	4,000	7,471	7,692	1·86	1·92
Pattia	783	5,698	6 526	7·27	8 34
Byturni	1,026	1,440	977	1·40	0 95
Burrah	526	5,935	7,165	11·28	13·62
Total of all weirs ...	18,497	62,796	1,86,432	3·39	10·08

As the rebuilding of the portions of the Naraje and Mahanadi weirs which had been carried away in 1886 was completed in 1887-88, the repairs necessary in 1888-89 were again of a normal character. A portion, however, of the apron of the Mahanadi weir was again injured by floods, involving a special outlay of Rs. 7,658 on its reconstruction.

The maintenance of the remaining head works, including river protective works, embankments and buildings, amounted to Rs. 8,372. Of these the buildings, on which quadrennial repairs were carried out, show an increase of Rs. 1,665.

MAIN AND BRANCH CANALS. 32. The following statement gives the cost of maintenance of each main and branch canal separately for four years:—

CANALS.	Miles.	1888-89.		1887-88.		1886-87.		1885-86.	
		Cost.	Per mile.	Cost.	Per mile.	Cost.	Per mile.	Cost.	Per mile.
	No.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Kendrapara...	39	30,370	1,000	17,430	446	21,004	538	30,780	789
Ditto extension ...	15	2,611	174	2,385	159	2,741	182	2,996	200
Gobri	15	6,434	429	4,500	300	3,975	265	7,806	520
Do. extension	6	4,725	787	4,047	674	3,599	600	9,101	1,517
Partamoondee	47	8,709	186	11,347	241	14,462	308	18,029	383
Taldanduh	27	17,067	630	8,993	333	9,971	369	14,213	526
Machgong	19	8,360	440	4,163	219	4,041	213	2,901	152
High Level, Range I ...	33	13,771	417	12,220	370	12,862	389	15,892	481
Ditto, do. II ...	12½	4,315	345	4,429	353	5,265	421	6,653	532
Ditto, do. III ...	19	6,330	333	6,806	358	6 216	327	10,021	559
Tota ...	23-½	1,11,712	480	76,319	328	86,736	360	1,19,601	514

The average mileage rate of maintenance, therefore, shows an increase of more than 46 per cent., in which nearly all the canals have shared. On the Kendraparah canal, where the increase is greatest, gate renewals were carried out on three locks, and both on this and other canals navigated by steamers, a great deal of earthwork was carried out in order to repair the erosion of the banks which were in many places protected by bamboo revetments. On the canals generally there has been a great increase in the amount of earthwork carried out, as well as in silt clearance and the removal of weeds. The quantity of silt cleared by hand was 9,904,436 cubic feet, and the cost Rs. 26,217, giving an average rate of Rs 2·65 per thousand, while in the previous year only 3,586,859 cubic feet were cleared at an average rate of Rs. 2·77. The amount of silt dredged was 304,077 cubic feet, and the cost Rs. 2,751, an average rate of Rs. 9 per thousand cubic feet. The cost of repairs to the canals, taking them all together, is far higher than in the two previous years, but is still below the cost in the somewhat abnormal year 1885-86; and an examination of the above figures and of those given in greater detail in the Superintending Engineer's report appears to show that a very large proportion of the increased cost as compared with the previous year is due to the effects of steamer navigation on the canal banks, or to outlay on navigation works, or in meeting the requirements of navigation. This remark applies with more or less force to all the navigable channels of the Kanchraparah system. It may be that the lower expenditure in the two previous years was due to a comparative neglect of the necessary repairs, but there appears to be grave reason for doubting whether these narrow channels are suitable to a heavy steamer traffic. The repairs during the year under review have certainly been effected with care; and should the experiment of planting the screw-pines along the water's edge have the anticipated result, the money will have been well spent, and a great saving in earthwork generally may be anticipated. But the experiment has not been tested sufficiently as yet, and should it not prove a success, either an entirely new method must be adopted for protecting the banks or little or no diminution in cost can be looked for.

The damage caused by steamer traffic cannot, however, be given as an explanation of the high rate on the navigable channel of the Taldandah canal nor on the Machgoing canal which has not yet been made navigable; and yet on both these the expenditure, as will be seen from the statement above, is double that of the previous year. In both cases the increased expenditure is ascribed to the larger amount of dressing and turfing required on the slopes and to increased charges for silt and weed clearing. The conclusion apparently to be drawn is that either these necessary repairs have been neglected in past years, or that a somewhat excessive zeal has been exhibited in "polishing." No special explanation is given for an abnormal collection of silt or an abnormal wear and tear to the slopes.

Of course some of the increased charges are beyond control, such, for instance, as the damage done to buildings by the cyclone of September 1888.

33. The cost per mile for repairs of distributaries for the last four years is shown below:— DISTRIBUTARIES.

	Miles.	1888-89.		1887-88.		1886-87.		1885-86.	
		Cost.	Per mile.	Cost.	Per mile.	Cost.	Per mile	Cost.	Per mile.
DISTRIBUTARIES.	No.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Kendrapara Canal System	334½	13,530	40·53	13,510	40·48	11,073	33·17	13,150	39
Taldunda Canal	71½	2,950	41·25	2,242	31·35	2,232	31·21	2,297	32
Machgong Canal	122½	5,725	46·83	5,183	42·38	4,071	33·30	3,743	30
High Level Canal, Range I	117½	9,246	78·35	4,660	39·74	4,081	34·80	5,325	45
Total ...	644½	31,451	48·77	25,594	39·69	21,457	33·27	24,521	38

On the High Level Canal, Range I, the quantity of earthwork and turfing required for the repairs of the distributary banks was much larger than usual—

an increase in which all the other canals share, though in a less degree. It is possible that this was due to the abnormal heavy rainfall of August, but this is not stated.

DRAINAGE AND PROTECTIVE WORKS.

34. There was also an increase during the year in the cost of drainage and protective works, amounting in all to Rs. 5,182; and occurring on the Kendrapara, Machgong and Gobri Extension Canals, and upon Ranges II and III of the High Level Canal. Besides greater outlay on clearing the drainage channels of silt, expenditure of a special character took place on the repairs of a large stone groyne above the Brahmini weir, and on the slopes and crests of the protective embankments.

NECESSITY FOR CAREFUL CONTROL OF THE EXPENDITURE.

35. As mentioned above, the increased expenditure both on canals and distributaries may have been due to a certain extent to natural causes, heavy rainfall, cyclone, &c., but a careful examination of the figures appears to show a distinct tendency to increased expenditure of a nature which may be guarded against and controlled. There is a happy mean between allowing works to fall into disrepair and a lavish expenditure in aiming at excessive trimness of banks and slopes, and there appears to be reason for doubting whether this happy mean has yet been found on the Orissa Canals, and the Superintending Engineer's earnest attention must be directed to this matter, as the only hope of ever making these canals pay even their working expenses appears to be in reducing expenditure as well as increasing receipts.

FLOODS.

36 The floods in the Mahanadi and Byturni rivers were moderate ones, but the flood in the Brahmini was slightly higher than the flood of 1879, although it was lower than the high flood of 1881 below the weir at Janapore. The highest flood in the Mahanadi river rose to 85 80 on the gauge at Naraje, as compared with 87·70, which was the highest reading obtained during the floods of the previous year, and with 92·10, which was the level reached at the same place by the great flood of 1872. The highest flood of the year in the Byturni river stood at a height of 5·40 feet above the reading of the flood of 1887 below the weir at Acquapadda.

MIDNAPORE CANAL.

CAPITAL ACCOUNT

37. The Capital, Interest and Revenue Accounts of this Canal are given below:—

I.—CAPITAL ACCOUNT.

HEADS OF ACCOUNT.	Outlay during 1888-89.	Outlay to end of 1888-89.
DIRECT CHARGES.	Rs.	Rs
I.—Works ...	(—)11	53,42,663
II.—Establishment	1	19,22,355
III.—Tools and plant	(—)429	8,93,489
IV.—Suspense accounts	3,133	43,496
Loss by exchange	.....	94,800
Total	2,694	82,96,803
V.—*Less* receipts on Capital account ...	29	30,793
Net total direct charges	2,665	82,66,010
INDIRECT CHARGES.		
Capitalization of abatement of land revenue ...	53	141
Leave and pension allowances	.....	1,83,570
Total indirect charges	53	1,83,711

2.—INTEREST ACCOUNT.

INTEREST.

			Rs.
Interest charges to end of 1887-88	...	...	50,87,143
Ditto for 1888-89	...	...	3,30,587
	Total	...	54,17,730

3.—REVENUE ACCOUNT (Actuals).

REVENUE ACCOUNT.

	Expenditure.			Receipts.	
	During 1888-89.	To end of 1888-89.		Durin g 1888-89.	To end of 1888-89.
DIRECT CHARGES.	Rs.	Rs.		Rs.	Rs.
I.—*Maintenance and repairs.*					
Works (extensions and improvements) ...	.....	40,738	Water-rates ...	91,016	15,43,174
Repairs	1,06,139	19,89,766	Navigation ...	1,49,480	16,78,434
Compensation ..	.....	30	Miscellaneous ...	11,299	1,93,535
Establishment, including direction and accounts	36,111	4,82,981	Total ...	2,51,795	34,15,143
Tools and plant ...	24,335	3,01,424	*Less*—Refunds of revenue	285	1,122
Total ...	1,66,585	28,14,939	Net total receipts ...	2,51,510	34,14,021
II.—*Revenue management.*					
Irrigation establishment	25,927	3,60,442			
Navigation ditto ...	7,550	1,34,738			
Total ..	33,477	4,95,180			
Total direct charges ..	2,00,062	33,10,119			
INDIRECT CHARGES.*					
Capitalized abatement of land revenue ...	.....	.....			
Leave and pension allowances	9,742	1,53,479			
Total indirect charges...	9,742	1,53,479			
Total working expenses	2,09,804	34,63,598			
Profit	41,706	(—)49,577			
Total ...	2,51,510	34,14,021			

* These are now shown under the suggestion of the Government of India.

The capital outlay during the year was Rs. 2,665, and to the end of the year Rs. 82,66,010 against Rs. 83,16,768, the amount of the estimate sanctioned by the Secretary of State.

The period allowed for the completion of the estimates sanctioned by the Secretary of State for the Midnapore canal expired on the 31st March 1888. At that date, however, certain works, which were regarded as falling within the scope of the original project, and therefore as properly chargeable to capital, still remained to be carried out. In these circumstances, the Government of India decided that no further extension of time for the completion of the project, as such, should be allowed, but, following the procedure laid down in Public Works Code, volume II, Chapter XV, paragraph 156, directed that a schedule of the works chargeable against capital, which it might be found necessary to carry out, should be annually submitted for sanction, and application for funds made in accordance with the provisions of the paragraph quoted.

EARNINGS.

38. The revenue account calculated on "earnings" of the year and expenditure is given below :—

EXPENDITURE.	Amount.	Earnings	Amount.
DIRECT CHARGES.	Rs.		Rs.
I.—Maintenance and repairs.			
Works (extensions and improvements) ...	...	Water-rates	1,31,433
Repairs	1,06,139	Navigation	1,46,760
Compensation	...	Miscellaneous ...	14,019
Establishment, including direction and accounts	36,111		
Tools and plant	24,335		
Total ...	1,66,585	Total ...	2,92,212
II.—Revenue management.			
Irrigation establishment	25,927		
Navigation ditto	7,550		
Total ...	33,477	*Less*—Refunds of revenue	285
Total direct charges ...	2,00,062	Net total receipts ...	2,91,927
INDIRECT CHARGES	9,742		
Total working expenses ...	2,09,804		
Profit	82,123		
Total ...	2,91,927		

Under the rules of the Midnapore canal, water is only supplied, as a general rule, from June to November, and the ordinary water-rates fall due on the 1st February, or within the limits of the year in which the water is supplied. Under ordinary circumstances, therefore, the amount of the 'earnings' of any year should coincide with the assessments of the year. In practice, however, a small portion of the assessments do not fall due till after the close of the year to which they belong; for instance, in cases of boro rice irrigation, where the whole of the assessment cannot well be completed before the close of the official year, or of lands illicitly irrigated, where the justice of the demand is disputed by the cultivator, and the assessment is consequently delayed. It may be stated that, of the sum of Rs. 1,31,433 shown above as the amount of water-rates earned during 1888-89, Rs. 1,18,243 are assessments completed within the year, Rs. 11,900 are assessments completed after the close of the year, while Rs. 1,290 is the estimated amount of the assessments which for various reasons it has not yet been possible to complete.

RAINFALL.

39. The following table shows the rainfall for the year 1888-89 and the four previous years at five registering stations in the Midnapore district:—

STATIONS.	1888-89.	1887-88.	1886-87.	1885-86.	1884-85.	Average of 19 years previous to 1888-89.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Midnapore	68·00	55·38	49·39	76·20	57·19	55·97
Panchkoorah	59·47	56·21	50·56	80·03	48·84	56·27
Luchmapore	60·93	47·00	56·35	81·84	Not available.	
Mowah	60·14	49·76	55·93	81·07	Ditto.	
Contai	59·24	54·41	48·24	76·45	77·30	69·20

Of these stations, the first four only are within or contiguous to the area commanded by the Midnapore canal. The rainfall of the year, though up to

the average, was very unequally distributed, as an examination of the quantity recorded in each month from June to November will show:—

		Inches.
June	1888	3·67
July	,,	18·57
August	,,	21·16
September	,,	6·58
October	,,	1·08
November	,,	0·29

The rainfall here shown for each month is the average of the quantities recorded at the four stations which lie within the irrigated tract.

LEASES AND IRRIGATION.

40. The area of all crops leased and irrigated is returned by the Deputy Revenue Superintendent in charge of the assessments at 69,777 acres. Of this area 62,374 acres were kharif lands leased for five years; while of 4,034 acres of kharif leased for one year, 122 acres were voluntarily leased, and 3,912 acres assessed on the ground of having been surreptitiously irrigated. Lastly, though the right of Government to use the water of the Cossye during the rabi months is restricted, arrangements, such as have been common of recent years, were made for the irrigation of a limited area of boro rice, and 3,369 acres were so irrigated under annual leases.

The Superintending Engineer returns the area leased and irrigated at 65,865 acres, thus differing from the return of the Deputy Revenue Superintendent by 3,912 acres. The explanation appears to be that the latter area was illicitly irrigated, and the assessment was not completed until after the close of the year. For this reason it was not included in the final month's irrigation returns of 1888-89; and the Superintending Engineer appears to have made a mistake in saying in his report that it was included.

The five-year leases in force during 1887-88 amounted to 66,628 acres, of which 32,875 acres expired on the 31st March 1888. During 1888-89 the renewals were 28,620 acres. The area of the leases which lapsed on the 31st March 1889 was 11,377 acres, an error having been made in the figures given in last year's note.

Of 69,777 acres assessed, 60,263 acres were irrigated from the Midnapore weir, 8,914 from the Panchkoorah weir, and 600 from the tidal reaches. Similar information for three years is supplied in the following table, where the percentage which the area irrigated in each year bears to that commanded and provided with distributaries is shown:—

Particulars.	Totals provided for in the revised estimate.	Midnapore Weir, Ranges IV & V.			Panchkoorah Weir, Range III and Tidal reaches, Ranges I and II.			Total.		
		1888-89.	1887-88.	1886-87.	1888-89.	1887-88.	1886-87.	1888-89.	1887-88.	1886-87.
Length of distributaries and branch canals ... Miles.	299·12	229·94	229·94	229·94	53·25	53·25	53·25	283·19	283·19	283·19
Area provided with distributaries ... Acres.	125,000	100,000	100,000	100,000	25,000	25,000	25,000	125,000	125,000	125,000
Area irrigated ... ,,	...	60,363	50,302	61,225	9,514	6,502	7,537	69,777	56,864	68,762
Percentage of area irrigated to that commanded ...	...	60·26	50·30	62·22	37·9	26·01	30·15	55·82	52·04	55·81

In his summary of the irrigation season, the Superintending Engineer quotes as follows from the Executive Engineer's report:—

"The improvement on the previous year's irrigation, though slight, is still satisfactory, when the adverse circumstances under which we were placed last year is taken into consideration. The rains as stated before began to fall from September and ceased altogether in October. The demand for irrigation became general; but with the failure of the rains the discharge of the river Cossye began to diminish until in October only 800 or 900 cubic feet were available to irrigate over 65,000 acres. In November, when the crops were greatly in need of irrigation, the river discharges went down to 300 cubic feet. With careful regulation, this was made to irrigate the area leased, and it is a matter for congratulation that no general failure in the irrigated rice crops occurred on any distributary."

The conditions here described, a demand becoming more intense in proportion as the supply failed, are such as to severely test the administration of any canal; and the dual system of administration in force at Midnapore, where the negotiations with those who require the water on the one hand and the actual control of the supply on the other, rest with distinct and independent officers,

would appear to be inherently weak when subjected to such a strain. As the Collector remarks with much force:—"There was a great rush for water in September and October, and a large number of leases were executed on the mere chance of getting it." And, to quote the words of the Deputy Revenue Superintendent, "this" (the Revenue) "Department was found fault with for taking more leases than the Engineer officers could supply water with." The expediency of a change of system, under which leases should be controlled by the Engineers who already control the supply, has been strongly urged by the Revenue officers, supported by the Engineers. Such a system has, however, been already in force on the Sone canals, where its efficiency has been severely questioned, and has been the subject of prolonged and exhaustive enquiries, the report on which is now about to be submitted to the Government of India. Until a final decision has been pronounced on that report, it would be obviously premature to amend the Midnapore system after the Sone pattern.

In connection with the remarks in last year's note (paragraph 35) on this same subject, the following remarks by the Superintending Engineer are worthy of consideration when any new system is proposed to be introduced:—

"The matter of making the leases of all land irrigable from the same outlet or same distributary terminable on the same date was under consideration, and it is probable that if this system is adopted, and the rate successively year by year increased for subsequent leases entered into on the same distributary, that irrigation would become more general.

"At present the disinclination to renew until forced by absolute failure of rainfall leads largely to surreptitious irrigation, which must be very largely in excess of that reported, at the expense in a dry season of those who have leased honestly. Penalty rates are not enforced, and the dishonest irrigator finds himself admitted to a lease for the remaining years of a five-years' lease or a five-years' lease as the case may be on the same yearly rate as a lessee for the whole term, or at any rate on no worse terms than the applicant for a lease.

"This is the system on which irrigation has been worked for years in Midnapore, and a greater premium on declining to enter into leases till the last moment could not be afforded. The fact is very well appreciated by those who have entered into leases, and it is no matter for surprise if they fall into similar ways as soon as their leases expire. By insuring their crops for five years, they get no corresponding advantage.

"Were the proposed system adopted, it might be possible to apportion water more fairly in years of scanty rainfall by first attending to the wants of the lessees on the oldest leased distributary."

COMPLAINTS. 41. The number of irrigation complaints was 1,731, of which 1,647 were filed during the year and 84 pending from the previous year. 1,218 of the complaints were objections to certificates issued under the Public Demands Recovery Act, most of them in cases of surreptitious irrigation, while in other cases the applicants alleged either that no water was supplied or that the water-rates were excessive. The remaining complaints appear to have been of an ordinary character. Of 1,492 claims disposed of, 216 were decided entirely in favour of the petitioners, while the remainder appear to have been either rejected or in some cases compromised by the applicants entering into leases. The number left pending at the close of the year was 239.

DUTY OF WATER. 42. The kharif duty calculated on the discharge utilized was 16¼ acres per cubic foot for the area under Midnapore weir and 18¼ acres for that under Panchkoorah weir. The former figure, which gives a much higher duty than what was obtained last year, must be received with caution, as the calculations of the discharges on which it is based are not trustworthy.

ASSESSMENTS AND COLLECTIONS. 43. The following comparative statement shows the balances, assessments, and recoveries of water-rates on the Midnapore canal since the year 1884-85:—

YEAR.	Amount outstanding at commencement of year.	Amount falling due during the year.	Total for recovery.	Cash realization.	Remitted or written off.	Balance at the end of the year
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1884-85	1,44,691	1,22,321	2,67,012	1,16,807	88,993	1,11,212
1885-86	1,11,212	1,10,868	2,22,080	1,08,709	43,399	69,972
1886-87	69,972	1,06,750	1,76,722	1,08,834	17,139	50,749
1887-88	50,749	1,02,532	1,53,281	90,837	5,951	56,493
1888-89	56,493	1,23,337	1,79,830	91,016	4,041	84,773

Thus, while the whole amount recoverable, including arrears, was Rs. 26,549 more than in 1887-88, the collections were only Rs. 179 more; the percentage of collections being 50·6 as against 59·3.

Out of the sum of Rs. 1,23,337 shown in the above table as falling due within the year, Rs. 1,18,243 were water-rates of the year itself. On this the collections were Rs. 39,863 and the remission Rs. 9, the total adjustments 33·7 per cent.

The amount recoverable on account of previous years was Rs. 61,586, of which Rs. 56,498 were arrears, properly so called, while Rs 5,093 were water-rates earned in previous years, but not recoverable till 1888-89. The amount adjusted was Rs. 55,185, or 89·02 per cent.

This large reduction of arrears and the smallness of the sum (Rs. 4,041) which it was found necessary to treat as irrecoverable are satisfactory features in the returns of the Deputy Revenue Superintendent. A different view must be taken of the collection of the current demand, from which a balance of Rs. 78,372, or 66·9 per cent., is left unsettled. In partial explanation, it is stated that Rs 39,302 had of necessity to stand over; of these, Rs. 5,053 were water-rates on boro rice, which is only reaped at the end of the year, Rs. 19,338 were demands contested by the ryots which could not be collected till the objections were heard and settled, and Rs 14,911 were demands which it will probably be necessary to strike out, as good reasons for remission, in some cases insufficiency of supply, in others loss of crop from breaches in the Cossye embankment, are known to exist.

MISCELLANEOUS RECEIPTS.

44. In miscellaneous revenue, the demand was Rs. 18,870, of which Rs. 5,503 were for arrears. The collections were Rs. 12,287 and the balance Rs. 6,035. The miscellaneous receipts collected by the Executive Engineer amounted to Rs. 1,731.

CERTIFICATES.

45. The number of certificates undisposed of at the end of the previous year was 5,310. In addition, 11,201 new certificates were filed, 5,017 being for surreptitious irrigation and 6,184 for satisfaction of demands under kabulyats: 9,326 were disposed of—in 3,847 cases by the realization of the demand, while the other 5,478 cases were struck off; 7,185 cases, of which only 661 were more than six months' old, were left unsettled at the end of the year, and with these good progress has since been made. It is stated that no certificates were issued for the realisation of the current demand.

REVENUE ESTABLISHMENT.

46. The cost of revenue establishment was Rs. 24,728 against Rs. 21,600 of the year preceding. The percentage of cost on the total collections is 23·93 against 20·34. The increased expenditure is chiefly accounted for by the payment of Rs. 2,135 as headmen's fees, on which nothing was spent in the previous year. The Commissioner remarks that in the report of the Deputy Superintendent nothing is said of the effect produced by the payment of commission to headmen. The Collector says the same, and notes further that, on the other hand, an attempt has been made to reduce expenditure by eliminating one collection with and making over its work to the others; but as this was done on the assumption that the leased area would not extend beyond its then existing limit, the success of the experiment has yet to be assured. Judging by the results the experiments have not so far answered since the collections have fallen off, and the percentage of cost of collection on the demand has increased.

NAVIGATION AND TRANSPORT SERVICE.

47. The receipts under navigation increased from Rs. 1,26,574 in 1887-88 to Rs. 1,46,760 in 1888-89. The usual particulars regarding the traffic carried during the last ten years in vessels other than those of the Calcutta Steam Navigation Company are given below:—

DESCRIPTION.		1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.
Miles open	No.	53	53	53	53	53	53	53	53	53	53
Toll collections ...	Rs.	91,861	77,143	98,060	1,00,157	1,08,931	1,19,797	1,25,331	1,01,054	1,08,..10	(a)1,25,332
Rate of toll per mile	,,	1,733	1,455	1,850	2,002	2,055	2,260	2,364	1,906	2,040	2,365
Number of boats, including empty boats	No.	36,044	45,461	51,408	52,554	52,069	47,653	42,240	45,799	49,628	54,214
Tonnage of boats ...	Tons	320,927	292,452	332,325	360,973	382,979	412,379	372,008	387,440	409,866	470,806
Passengers carried	No.	180,294	166,286	201,089	181,251	170,745	...	...	208,582	160,367	(b)167,259
Estimated value of cargo, including rafts	Rs.	1,59,61,496	1,43,15,008	1,47,79,798	1,60,43,032	1,70,53,400	1,57,92,907	1,27,22,175	97,25,587	1,18,44,844	1,31,70,26

(a) Exclusive of Rs. 21,428 tolls paid by the Calcutta Steam Navigation Company.
(b) By private boats, 81,940, and by the Calcutta Steam Navigation Company's steamer, 85,319.

The tollage receipts both from boats and steamers continue to advance, and are now higher than in any previous year, the increase being distributed over the whole year except for the month of August, when navigation was stopped owing to the excessive accumulation of silt at the Panchkura works. The Superintending Engineer shows that the export traffic in rice and paddy is steadily on the increase in the districts of Midnapore and Hooghly, and appears to be stimulated by a bad harvest, such as that of 1888-89, when the superiority of irrigated over unirrigated crops is more marked. Other goods of which greater quantities were carried are raw cotton, salt, piece-goods, building materials, fuel, timber and miscellaneous.

The Calcutta Steam Navigation Company continue to maintain a double daily service of steamers on the Midnapore canal. The discomfort of these vessels is made the subject of a complaint by the Executive Engineer. The tolls paid by the Company rose from Rs. 18,114 to Rs. 21,428.

FINANCIAL RESULTS.

48. The following statement shows the receipts on revenue account and working expenses of the Midnapore canal since the year 1879-80:—

PARTICULARS.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-889.
Receipts.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Water-rates	1,30,140	1,12,960	1,18,588	1,04,060	1,37,060	1,14,807	1,09,709	1,06,634	90,837	91,016
Navigation	1,05,518	93,099	1,20,706	1,46,922	1,20,580	1,28,747	1,37,578	1,09,698	1,26,574	1,46,760
Miscellaneous	11,567	10,407	10,780	17,028	12,990	12,401	16,197	15,638	16,967	14,019
Total ...	2,47,225	2,16,466	2,50,074	2,68,010	2,64,676	2,57,955	2,62,484	2,34,185	2,34,378	2,51,795
Less—Refunds of revenue	...	...	...	...	44	112	...	211	453	285
Net total receipts ...	2,47,225	2,16,466	2,50,074	2,68,010	2,64,632	2,57,843	2,62,484	2,33,974	2,33,925	2,51,510
WORKING EXPENSES.										
DIRECT CHARGES.										
I.—Works, Maintenance and repairs.										
Works and repairs ...	94,488	1,21,607	1,35,114	1,40,007	1,27,628	1,34,036	1,24,857	1,37,752	1,31,181	1,06,139
Compensation ...	...	...	...	...	30	...	...	...	...	...
Establishment, including direction and accounts	19,162	20,160	31,022	32,218	29,342	30,822	28,651	31,077	46,407	36,111
Tools and plant	17,036	17,975	36,448	31,354	31,229	26,591	25,952	25,003	31,409	24,338
Total ...	1,30,686	1,65,832	2,02,584	2,03,639	1,88,229	1,91,449	1,79,460	1,94,432	2,09,057	1,66,588
II.—Revenue management.										
Irrigation establishment	16,377	16,101	18,371	20,337	19,862	24,004	22,720	24,184	22,797	25,927
Navigation ditto ...	7,340	7,437	7,519	14,101	7,511	7,609	7,010	7,575	7,750	7,550
Total ...	23,717	23,538	25,890	34,438	27,373	31,613	30,406	31,729	30,556	33,477
Total direct charges ...	1,54,403	1,89,220	2,28,474	2,38,077	2,15,602	2,23,062	2,09,866	2,26,161	2,39,613	2,00,065
Indirect charges* ...	7,622	8,823	10,116	8,425	7,940	8,741	8,267	8,877	10,783	9,742
Total working expenses...	1,62,025	1,98,043	2,38,590	2,46,502	2,23,542	2,31,803	2,18,127	2,35,038	2,50,396	2,09,804
Net revenue ...	85,200	18,423	11,484	21,508	40,990	26,040	44,357	(—) 1,064	(—) 16,471	41,706

* These are now shown under the suggestion of the Government of India.
If allowance be made for the increase in the establishment charges under the new method, the year under review would compare favourably with any year since 1880-81 at any rate.

EXPENDITURE ON REPAIRS.

49. The actual cost of repairs during the year 1888-89 was less than that in the previous year, and is distributed by sub-heads as shown below:—

	1888-89.	1887-88.
	Rs.	Rs.
Head works, including buildings ...	13,903	11,667
Main canal and branches ...	65,216	89,238
Distributaries	22,464	20,687
Drainage and protective works ...	2,113	1,990
Steamers	2,443	7,599
Total	1,06,139	1,31,181

HEAD WORKS.

The expenditure on the Midnapore head works was Rs. 10,551 and on the Panchkoorah head works Rs. 3,352. The expenditure on weirs was Rs. 2·70 per foot run of the Midnapore weir and Rs. 3·34 of the Panchkoorah weir against Rs. 1·48 and Rs. 5·30 respectively last year. The cost of clearing silt from the locks and lock entrances situated above the two weirs was considerable. A large sum also was expended in replacing the apron of the Midnapore weir and on the shutters on the Panchkoorah weir sluices.

There is a decrease of Rs. 26,819 on the repairs of main canal and head works taken together, and an increase of Rs. 1,777 on those of distributaries. Mileage rates are worked out below:— MAIN CANAL

YEAR.	MAIN CANAL AND HEAD WORKS, &c.			DISTRIBUTARIES.		
	Length of canal, exclusive of river crossings.	Total cost of work.	Rate per mile.	Length of distributary channels.	Total cost of work.	Rate per mile.
	Miles.	Rs.	Rs.	Miles.	Rs.	Rs.
1881-82	48	1,03,910	2,164	277	11,854	42
1882-83	48	1,01,821	2,121	277	20,407	73
1883-84	48	1,06,425	2,216	277	21,195	76
1884-85	48	1,15,171	2,399	277	18,865	68
1885-86	48	1,10,350	2,299	277	14,424	52
1886-87	48	1,20,135	2,503	283	17,617	63
1887-88	48	1,10,494	2,301	283	20,687	74
1888-89	48	83,675	1,743	283	22,464	79

The mileage rate of the main canal is much lower than in previous years, economies having been chiefly effected in earthwork charges, which fell from Rs. 59,161 to Rs. 49,758, and in repairs of navigation works, which fell from Rs. 19,162 to Rs. 4,008. In earthwork 4,176,765 cubic feet of silt were cleared by dredgers and removed at a cost of Rs. 26,387, or at an average rate of 6·31 per thousand, which compares favourably with the rate of 7·63 obtained in the previous year, and 1,931,281 cubic feet were cleared by hand and excavators at an average rate of Rs. 5·32 per thousand, which is slightly higher than in 1887-88. In addition 1,755,000 cubic feet were cleared at an average rate of Rs 8-12-6 per thousand from the first three reaches, which were closed for that purpose during April.

The cost of repairs to distributaries was Rs. 22,464 against Rs. 20,687 in the preceding year. The mileage rate for the year was Rs. 79 per mile, which is higher than that of former years; but it is explained that an expenditure of Rs. 8,039 for 4,493,278 cubic feet of earthwork had to be incurred in raising banks and clearing silt and in closing the breaches caused by the excessive floods of July and August. A certain amount of silt clearance and repairs to banks must always have to be done, whilst even if we exclude the whole sum, the balance falls at a rate of Rs. 51 per mile, which was about the rate in 1885-86, when it was Rs. 52 per mile. Since then the yearly rates have been Rs. 63, Rs. 74 and now Rs. 79, and there appears to be sufficient ground for a searching enquiry as to whether the expenditure under this head cannot be reduced, since even Rs. 51 per mile appears to be higher than the rate ought to be. DISTRIBUTARIES.

The expenditure on tools and plant amounted to Rs. 24,335 against Rs. 31,409 of the previous year, and was incurred principally on repairs to the dredging plant. REPAIRS TO DREDGERS.

50. The highest flood in the Cossye river, the result of heavy rainfall following in cyclonic storm in the Bay, occurred on the 25th August, when the gauge reading above Midnapore weir was 88·80 and below it 87·50, against 92·30 and 91·55 respectively, the highest recorded in 1868. Several minor floods came down the river, which caused serious silt deposits both at Mohunpore and Panchkoorah. Though very considerable damage by floods was caused to embankments both north and south of the canal by which irrigated crops are reported to have been destroyed, no damage occurred to the canal or works. FLOODS.

HIDGELLEE TIDAL CANAL.

51. On this canal, which is a major work, no capital expenditure was incurred during the year under report. The expediency, however, of incurring further expenditure on works designed for the most part to overcome the accumulations of silt, which at present interfere with the financial success of the canal, was indicated in the Chief Engineer's note of last year, and it was stated that estimates for remodelling the canal were then under the consideration of the Government of India. These estimates, amounting to Rs. 7,91,963, have now been sanctioned by the Secretary of State, and funds will be assigned as required for the completion of the improvements, with the condition, which has been

accepted by the Lieutenant-Governor, that the province shall accept financial responsibility for the work by agreeing to pay interest at the rate of 4 per cent. on all allotments made from Imperial revenues under this arrangement. The remodelling of the canal, therefore, as opposed to the original project, will be classified as a minor work.

CAPITAL ACCOUNTS.

52. The capital, interest, and revenue accounts of the Hidgellee Tidal Canal are given below :—

1.—CAPITAL ACCOUNT.

HEADS OF ACCOUNT.	During 1888-89.	To end of 1888-89.
DIRECT CHARGES.	Rs.	Rs.
I.—Works	... ..	12,66,289
II.—Establishment...	.....	4,49,790
III.—Tools and plant	.....	57,585
IV.—Suspense accounts	.....	.....
Loss by exchange	.....	22,790
Total ...	.....	17,96,404
V.—*Less*—Receipts on capital account	.....	915
Net total direct charges ...	.....	17,95,489
INDIRECT CHARGES.		
Capitalization of abatement of land revenue	.....	11,210
Leave and pension allowances	.....	33,597
Total indirect charges ...	.. ...	44,807

INTEREST ACCOUNT.

2.—INTEREST ACCOUNT.

	Rs.
Interest charges to end of 1887-88	12,58,963
Ditto for 1888-89	71,820
Total ...	13,30,783

REVENUE ACCOUNT.

3.—REVENUE ACCOUNT—(Actuals).

	EXPENDITURE.			RECEIPTS.	
	During 1888-89.	To end of 1888-89.		During 1888-89.	To end of 1888-89.
DIRECT CHARGES.	Rs.	Rs.		Rs.	Rs.
I.—*Works, maintenance and repairs.*					
Works (extensions and improvements) ...	1,718	4,751	Water-rates ...	...	2,611
Maintenance and repairs	50,920	4,70,616	Navigation ...	53,921	8,08,635
Establishment, including direction and accounts	16,572	1,14,398	Miscellaneous ...	1,249	19,377
Tools and plant ...	2,868	24,471			
Total ...	72,078	6,14,236	Total ...	55,170	8,25,623
II.—*Revenue management.*					
Navigation establishment	3,195	53,050	*Less*—Refunds of revenue ...	73	983
Total direct charges ...	75,273	6,67,286	Net total receipts...	55,097	8,24,640
INDIRECT CHARGES.*					
Capitalized abatement of land revenue ...	...	...			
Leave and pension allowances	2,767	26,240			
Total indirect charges...	2,767	26,240			
Total working expenses	78,040	6,93,526			
Profit	(—)22,943	1,31,114			
Total ...	55,097	8,24,640			

*These are now shown under the suggestion of the Government of India.

53. The usual particulars regarding the traffic on the Hidgellee Tidal Canal since the year 1879-80 are given in the following statement:— TRAFFIC.

PARTICULARS.		1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.
Miles open	No.	29	29	29	29	29	29	29	29	29	29
Toll collections ...	Rs.	44,918	53,338	45,848	48,604	62,317	41,382	52,143	51,904	40,406	53,910
Rate of toll per mile	,,	1548'89	1839'20	1581'00	1510'69	2148'00	1427'00	1798'03	1789'79	1393'31	1858'96
Number of boats ...	No.	16,311	21,783	20,057	17,445	22,728	17,060	19,316	17,543	13,503	16,481
Tonnage of boats ...	Tons.	120,021	152,781	133,020	132,884	196,764	145,424	163,535	149,747	124,902	163,035
Passengers carried ...	No.	3,061	3,631	3,236	3,510	...	...	...	8,569	11,951	34,032
Estimated value of cargo, including rafts	Rs.	25,86,031	23,34,731	21,19,855	23,83,244	33,42,020	30,06,852	32,74,961	31,48,820	26,13,351	33,01,123

The receipts from tolls during the year under review amounted to Rs. 53,910 against Rs. 40,406 for the previous year, thus showing an increase of Rs. 13,504. The previous year was a year of partial closure of canal for silt clearance.

54. The only receipts other than tolls are miscellaneous. These amounted to Rs. 1,260 against Rs. 1,452 of the previous year. MISCELLANEOUS

55. The following statement shows the receipts on revenue account and working expenses of the canal for the last ten years:— FINANCIAL RESULTS.

PARTICULARS.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.
Receipts.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Navigation	44,918	53,338	45,848	48,604	62,317	41,382	52,143	51,904	40,406	53,910
Miscellaneous	863	1,149	1,446	1,338	1,273	2,125	312	2,560	1,452	1,260
Total ...	45,781	54,487	47,294	49,932	63,590	43,507	52,455	54,464	41,858	55,170
Less refunds of revenue ...	...	...	...	...	...	...	...	918	...	73
Net total receipts ...	45,781	54,487	47,294	49,932	63,590	43,507	52,455	53,494	41,858	55,097
WORKING EXPENSES. DIRECT CHARGES.										
I.—Works, maintenance and repairs.										
Works	...	1,886	1,147	...	...	...	...	...	...	1,718
Repairs	30,607	17,015	18,331	29,460	32,994	26,862	34,009	11,088	47,028	50,920
Establishment, including direction and accounts ...	8,794	2,289	4,497	6,775	7,588	6,178	7,843	2,756	11,855	16,572
Tools and plant...	...	1,444	1,834	1,202	2,784	292	3,524	4,155	2,105	2,868
Total ...	39,401	22,634	25,809	37,597	43,366	33,332	45,376	18,899	61,988	72,078
II.—Revenue management.										
Navigation establishment ...	2,883	2,956	2,869	2,973	3,215	3,354	3,143	3,026	3,007	3,195
Total direct charges ..	42,284	25,590	28,678	40,570	46,581	36,686	48,609	21,925	64,995	75,273
Indirect charges	2,071	930	1,306	1,327	1,512	1,302	1,538	810	2,081	2,767
Total working expenses ...	44,355	26,520	29,984	41,897	48,093	38,248	50,147	22,735	66,076	78,040
Net revenue ...	1,426	27,967	17,310	8,135	15,497	5,259	2,308	30,759	(−)25,118	(−)22,943

The deficit in the year's working, notwithstanding a substantial increase of Rs. 13,239 in the receipts, was anticipated in the Chief Engineer's note of last year, where it was stated that of the charges incurred for the thorough clearing of the channels in 1887-88, a large sum would not be paid till the following year. The actual amount of these payments was Rs. 39,580. The influx of silt was largely due to the deterioration which has taken place in the condition of the Russulpore river, from which the canal was formerly supplied. Since the completion of the last silt clearance the feed has been exclusively taken in at the Huldee river, and it is hoped that another closure may not be found necessary for three seasons.

56. After the heavy rains at the end of August, the southern portion of the district of Midnapore was visited by floods of great severity, and the incapacity of the natural drainage channels to relieve the inundated tracts was investigated by a committee of enquiry. The brunt of the inundation fell on the tract of country adjoining range III of the Orissa coast canal. Regarding the Hidgellee canal, it appeared that though the drainage of parts of the affected area had been to some extent obstructed by it, yet this obstruction was not one of the main causes of the floods, and any injury so caused was more than counterbalanced by the enormous benefits conferred on landlords and ryots by the protective works constructed by Government. The defects in the arrangements for passing drainage water across the canals are now being remedied, and it is hoped that by the lowering of the bed, which is a feature in the recently-sanctioned scheme for remodelling the canal, complete facilities for drainage will be afforded. The damage done to the canal was not such as to require special expenditure beyond that provided in the regular maintenance estimates. FLOODS.

SONE CANALS.

CAPITAL ACCOUNT.

57. The Capital, Interest and Revenue Accounts of these canals are given below:—

1.—CAPITAL ACCOUNT.

HEADS OF ACCOUNT.	Outlay during 1888-89.	Outlay to end of 1888-89.
DIRECT CHARGES.	Rs.	Rs.
I.—Works	93,250	1,81,56,556
II.—Establishment	20,691	50,81,927
III.—Tools and plant	21,776	21,12,855
IV.—Suspense accounts	12,770	1,88,341
Loss by exchange	.....	52,240
Total ...	1,48,487	2,55,91,919
V.—*Less* receipts on Capital account	44	3,07,237
Net total direct charges ...	1,48,443	2,52,84,682
INDIRECT CHARGES.		
Capitalization of abatement of land revenue ...	.....	37,834
Leave and pension allowances	2,897	8,60,725
Total indirect charges ...	2,897	8,98,559

INTEREST ACCOUNT.

2.—INTEREST ACCOUNT.

	Rs.
Interest charges to end of 1887-88	1,25,23,898
Ditto for 1888-89	10,08,418
Total ...	1,35,32,306

REVENUE ACCOUNT.

3.—REVENUE ACCOUNT (actuals).

	EXPENDITURE.			RECEIPTS.	
	During 1888-89.	To end of 1888-89.		During 1888-89.	To end of 1888-89.
DIRECT CHARGES.	Rs.	Rs.		Rs.	Rs.
I.—Works, Maintenance and Repairs.					
Works (extensions and improvements) ...	10,426	15,958			
Repairs	3,28,182	35,43,798	Water-rates ...	7,59,556	68,75,460
Compensation ...	.....	2,463			
Establishment, including direction and accounts	1,97,677	11,40,593	Navigation .	57,829	6,77,467
Tools and plant ...	33,920	2,08,592	Miscellaneous	26,504	4,36,466
Total ...	5,70,205	49,11,404	Total ...	8,43,889	79,89,393
II.—Revenue Management.					
Irrigation establishment	1,58,249	13,23,848	*Less* refunds		
Navigation establishment	14,165	1,70,129	of revenue ...	12,611	74,394
Total ...	1,72,414	14,93,977			
Total direct charges ...	7,42,619	64,05,381	Net total receipts ...	8,31,278	79,14,999
INDIRECT CHARGES.*					
Capitalized abatement of land revenue ...	.....	.....			
Leave and pension allowances	51,813	3,85,940			
Total indirect charges ...	51,813	3,85,940			
Total working expenses	7,94,432	67,91,321			
Profit	36,846	11,23,678			
Total ...	8,31,278	79,14,999			

* These are now shown under the suggestion of the Government of India.

The expenditure on capital account during the year was Rs. 1,48,443. The principal works carried out were docks at Bedadi, Nasriganj, and Daodnugger; a warehouse at Bedadi, a syphon aqueduct at mile 10¾, Domraon Branch canal, and numerous permanent outlets in all divisions. The following works were all but completed at the close of the year:—Docks at Baroon Urwal, and Deegah; the Tejpoora distributary taking off from the Patna canal and the Bacheri drainage cut; Telegraph offices at Baroon, Nasriganj and Ugeon; the Rewah escape, and several minor works.

EARNINGS.

58. The income calculated on "Earnings" of the year and expenditure are shown below:—

EXPENDITURE.	Amount.	Earnings.	Amount.
DIRECT CHARGES.	Rs.		Rs.
I.—Works, Maintenance and Repairs.		Water-rates	8,05,790
		Navigation	57,829
		Miscellaneous	26,504
Works (extensions and improvements)	10,426	Total ...	8,90,123
Repairs	3,28,182		
Establishment, including direction and accounts ...	1,97,677	*Less* refunds of revenue ...	12,611
		Net total earnings ...	8,77,512
Tools and plant	33,920		
Total ...	5,70,205		
II.—Revenue Management.			
Irrigation establishment ...	1,58,249		
Navigation ditto ...	14,165		
Total ...	1,72,414		
Total direct charges ...	7,42,619		
INDIRECT CHARGES.			
Capitalized abatement of land revenue	.....		
Leave and pension allowances ..	51,813		
Total indirect charges ...	51,813		
Total working expenses ...	7,94,432		
Profit	83,080		
Total ...	8,77,512		

The water rates now shown as "earned" are the assessments on the irrigation of the year, and include for the first time those assessments which were not completed until after the close of the year.

LENGTH OF CANALS AND DISTRIBUTARIES.

59. The following table shows the lengths of canals and distributaries open and the areas commanded and irrigable:—

DIVISION.	Navigable canals.	Branch canals.	Distributaries.	Gross area under command.	Maximum discharge of canal.	AREA WHICH CAN BE IRRIGATED.		
						Kharif.	Rabi.	Total.
	Miles.	Miles.	Miles.	Acres.	Cubic feet per second.	Acres.	Acres.	Acres.
Eastern Sone	86½	...	358	406,155	1,613	129,040	180,000	309,040
Arrah	74½	71½	467½	618,356	4,342	347,360	360,000	707,360
Buxar	58	77½	343	704,000				
Total ...	28½	148½	1,168½	1,728,500	5,955	476,400	540,000	1,016,400

An addition of 1¾ miles has been made to the length of distributaries during the year. There are, besides the distributaries included in the

above return, 14 miles of village channel maintained at the cost of Government in the Buxar Division. There is no change in the areas commanded and irrigable; the provision of parallel channels along part of the Buxar canal has, however, enabled land in their neighbourhood to be more easily and satisfactorily supplied with water, and will eventually result in some increase in the area under irrigation.

VILLAGE CHANNELS AND OUTLETS.

60. The following table shows the progress made with village channels and outlets:—

Division.	Total length of village channels completed.	Total number of temporary and permanent outlets.	Number of permanent outlets.
	Miles.	No.	No.
Eastern Sone	204½	2,083	320
Arrah	768½	2,330	737
Buxar	511½	984	274
Total, 1888-89 ...	1,484½	5,397	1,331
Total, 1887-88 ...	1,525	5,999	828

Of the village channels now in use, 185½ miles have been constructed by Government agency and 1,299 by villagers. The figures as regards channels constructed by villagers are only approximate, and the decrease in the total length is partially due to this cause; it is, however, mainly owing to the reduction in the number of outlets from 5,999 to 5,397, which has been accompanied by an increase in the area under irrigation. The construction of permanent outlets was pushed on during the year, 503 having been built in carefully chosen situations with a discharging capacity proportioned as nearly as possible to the area under lease or likely to be irrigated.

RAINFALL.

61. The following statements furnish the rainfall statistics of the Sone canal system and the distribution by canal divisions for the last five years:—

		Average of 22 stations.				
		1888-89.	1887-88.	1886-87.	1885-86.	1884-85.
		Inches.	Inches.	Inches.	Inches.	Inches.
Kharif season ...	August	18·49	9·48	11·73	16·69	9·09
	September	7·35	5·21	12·51	10·57	5·41
	October	0·18	4·18	8·33	0·34	3·50
	Total ...	26·02	18·90	32·57	27·60	18·00
Rabi season ...	November	0·46	...	0·23	...	...
	December	...	...	0·22	2·45	...
	January	1·22	1·09	1·47	0·10	0·55
	February	1·30	...	...	0·11	0·03
	Total ...	2·98	1·09	1·92	2·66	0·58
	Whole year ...	47·34	40·31	59·34	44·99	30·29

Years.	Eastern Sone Division.			Arrah Division.			Buxar Division.		
	Kharif season.	Rabi season.	Whole year.	Kharif season.	Rabi season.	Whole year.	Kharif season.	Rabi season.	Whole year.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
1888-89	23·72	2·86	40·30	25·14	2·35	46·46	24·87	2·32	43·24
1887-88	14·35	0·92	38·11	20·59	1·08	43·67	20·43	1·22	38·18
1886-87	34·66	1·73	62·34	36·40	1·83	62·30	26·48	1·85	51·06
1885-86	30·25	2·15	46·54	27·02	2·84	44·68	27·82	2·02	43·29
1884-85	17·11	0·49	30·67	18·84	0·54	31·63	20·96	0·69	31·37

The Superintending Engineer reports:—"The rainfall for the year (45·43 inches), average for all stations, over the area commanded by the Sone Canals was, it will be noted, considerably in excess of that which fell in the year preceding (40·18 inches), and it was also in excess of the average for 20 years (41·25

inches). The chief characteristics of the season, as regards rainfall, were—*First*, the late date at which the rains commenced. No rain fell at Arrah until the 2nd July, and the rains throughout the area irrigable may be said to have commenced on this date. *Secondly*, the favourable rainfall during July, August, and the first ten days of September. *Thirdly*, the almost entire cessation of the rains from the 11th of September to the 29th of November, the average fall over all canal stations for that period being 1·47 inches only. *Fourthly*, the wide variation in the falls at different stations ranging for the year from 39·03 inches at Sikroul to 52·07 inches at Nasrigunge. This variation had only a comparatively small effect on the area irrigated, as up to the 10th of September the rainfall may be said to have been generally favourable."

62. The following statement shows the area leased and irrigated during the last four years :— AREA LEASED AND IRRIGATED.

Description.	1888-89.		1887-88.		1886-87.		1885-86.	
	Leased.	Irrigated.	Leased.	Irrigated.	Leased.	Irrigated.	Leased.	Irrigated.
	Acres.	Acres.	Acres	Acres.	Acres.	Acres.	Acres	Acres.
Five-year leases	200,275	200,102	210,535	210,164	194,419	194,556	173,829	170,784
Annual leases—								
Kharif	71,794	69,628	43,088	57,595	27,733	30,082	62,107	80,702
Rabi	61,019	69,817	16,788	27,501	10,639	16,632	31,764	50,610
Sugarcane	3,530	4,620	3,891	6,265	5,402	11,626	5,186	10,527
Hot-weather	9,056	11,702	9,313	18,855	5,619	15,278	6,117	10,857
Total annual leases ...	145,447	155,867	72,980	105,216	52,393	73,618	105,174	152,786
Grand total ...	345,682	355,969	283,515	315,380	246,812	268,204	279,003	332,570
Percentage of leased to irrigated area	97·12		89·89		92·02		83·89	

The area irrigated was in excess of any year to date, except 1884-85, when the area irrigated was 370,661 acres. The area under annual leases during the kharif season exceeds the area irrigated. This is partly due to areas leased late in October, to which water could not be supplied in time to be of service, but mainly to the strenuous efforts which were made to confine the water within the leased areas. Unauthorized irrigation in the kharif season has practically disappeared.

It will be noticed that compared with the previous year there has been a decrease of 10,260 acres under five-years' lease. It is not to be inferred that there has been any reduction on the area actually irrigated. Applications for five-year leases for 15,050 acres were either declined by the Canal Officers or withdrawn, chiefly the former for reasons given in the extract from the Sub-Engineer's report quoted in the next succeeding paragraph.

The Sub-Engineer was given authority to cancel five-year leases with the result that no single application was declined, and leases for 1,456 acres only cancelled. This may be taken, with leases for 529 acres subsequently cancelled, as the full area on which the lessees were dissatisfied with their bargain.

Out of the 200,102 acres irrigated under five-years' lease, it is estimated that 154,825 acres, or 77·3 per cent., were cultivated under kharif; 27,408 acres, or 13·6 per cent., under rabi; and 17,869 acres, or 8·9 per cent., under sugarcane crops.

The statement below shows the area irrigated during the year and the two preceding, as well as 1884-85, the largest on record, classified by crops—

	1888-89.	1887-88.	Difference.	1886-87.	1884-85.
	Acres.	Acres.	Acres.	Acres.	Acres.
Kharif	224,453	220,428	+ 4,025	177,510	246,740
Rabi	97,225	56,090	+ 41,135	45,361	99,280
Sugarcane	22,469	25,007	— 2,538	30,055	23,682
Total ..	344,147	301,525	+ 42,622	252,926	369,702
Add—Hot-weather irrigation ...	11,762	13,855	— 2,093	15,278	959
Grand Total ...	355,909	315,380	+ 40,529	268,204	370,661

In 1887-88 there was a sharp demand for canal water during the kharif season checked by a copious fall of rain on the 13th October which had an important effect in limiting the area under rabi irrigation during that year. The year under review is perhaps more fitly comparable with 1884-85, in which 14,752 acres more were irrigated. The rainfall in 1888-89 was 45·43 inches for the year and 24·61 inches during the kharif season, the corresponding figures for 1884-85 being 30·26 inches and 18·00 inches; the period of great demand being during October in 1889 and during August and September in 1884.

63. The system pursued was not altogether the same. In 1884-85 but little attempt was made to restrict the supply of water to the area under lease, and irrigation previous to the issue of a permit was not rigorously suppressed, nor were the rules regarding the existence of proper village channels enforced. In 1888-89 the most strenuous efforts were made to prevent unauthorized irrigation, and generally to enforce the provisions of the law and rules. The procedure adopted is detailed in the extract from the Superintending Engineer's report quoted below:—

"Up to the middle of September the season, though the rains were late in commencing, was not unfavourable, but from the commencement of the *Hathia*, the 26th of September, rain was eagerly looked for, and none falling by the beginning of the *Chitra*, the 9th of October, the demand for canal water became urgent and pressing Applications for permits poured in from all sides, and the greatest eagerness to irrigate leased areas was manifested.

"It had been determined at the beginning of the season to abstain from in any way pressing cultivators to enter into leases. Whilst every possible assistance was given, if desired, they were left to decide the matter entirely in accordance with their own view of their own interests. When applications were tendered, the size of outlet allowed was fixed as nearly as possible in accordance with the discharge required to irrigate the area proposed to be leased, so that unauthorized irrigation on any considerable scale would not be possible. It was explained that a *tatil* would be enforced These measures were in some localities not popular, and several applications were in consequence not completed Many applications for leases, five-year and annual, were refused until proper channels were provided, and altogether declined where there was doubt as to the supply of water available, or where the block proposed was such that unauthorized irrigation was certain to occur. These causes and the hope that holding off from applying for leases might induce Government to reduce the water-rates had considerable effect in lessening the area under lease when the urgent demand for water commenced about the 3rd of October. In many cases it was then too late; channels could not be provided in time, nor could water be given within the few days during which the crop could live without irrigation."

The area irrigated in October was in fact practically limited only by the quantity of water available, and the facilities which existed or could be improvised for leading it to the fields From the 16th to the 25th of October, an average of 2,415 cubic feet of water per second were passed down the Arrah canal, which was designed to carry 1,660 cubic feet per second only. In 1884-85 the sharp demand occurred in August and September, so that the time during which irrigation could be usefully effected was more protracted, and under the same circumstances, the area irrigated in 1888-89 would probably have been in excess of the results of that year. Of the late irrigation about 5,000 acres reported as leased or irrigated chiefly in the Arrah Division could not be assessed on various grounds, and if the financial interests of the canals were the only consideration, there is little doubt that it would be best to refuse permits after the 20th of September. It is a matter for consideration whether under such circumstances previous payment in part at least should not be insisted on. The area noted above, having been decided not to have been irrigated in a legal sense, has been excluded from all the returns.

There was a general failure of the rains in Behar, so that it was considered desirable that an account of the kharif irrigation of the year for the Sone canals should be published at an early date for general information. A note on the subject was accordingly published in the *Calcutta Gazette* for the 9th January 1889.

The large increase in the rabi irrigation was chiefly due to there being no rain in October and November, though the reduction in rate of from Rs. 2-8 to Rs. 2 per acre for flow irrigation for the year only had some influence in inducing applications, the major part of which must in any case have been filed, as the ground was so dry that the seeds would not germinate without artificial irrigation.

64. Whatever difference of opinion may exist as to the procedure to be adopted as regards irrigation or the rates to be charged, the advantage reaped by the country generally from the Sone canals during 1888-89 is unquestionable, and the Superintending Engineer appears to have full justification for the observations made in the extract from his report which follows:—

"There can be no doubt as to the benefits the Sone canals conferred on the districts which they traverse during the year 1888-89. The failure of the rice crop outside the area commanded by the Sone canals was nearly complete; the aharas in which there was any water in the first week of October being few and far between. The situation was complicated by the necessity of blocking early in October four vents in the Dehree river sluices of the Sone weir. As narrated in an extract from a report on the kharif irrigation of the year, quoted in paragraph 4, this operation was carried out in 15 hours, during which time only was the supply of the canals partially shut off. There was at the time considerable sickness amongst the sectional officers, and substitutes, even inefficient, could not be procured. The brunt of the work fell on the Subdivisional officers, amongst whom were one European and three native upper subordinates, and sick or well, they threw themselves into the work with a vigour which in my opinion deserves the commendation of Government. The Divisional officers were no less energetic and self-sacrificing in directing operations. The result of the efforts made is generally admitted to have been successful. A pamphlet by a native gentleman, a pleader and landowner, in which a view, certainly not favourable to canal irrigation, is taken, thus speaks of the operations of the year:—'It is almost admitted that in the year under review the canal authorities have worked better in all the departments than in previous years. The supply of water was satisfactory, the prayers of the cultivators were attended to, and, generally speaking, the arrangements were good.' It is fair to say that he adds:—'In fact, the successful management of this year carries with itself condemnation of the system.' The main difference between the system adopted during the year and that previously in force was the determined effort made to prevent water being taken until permits had been granted. The supply of water was rigorously limited to the area leased, and criminal prosecutions instituted, wherever possible, when water was misappropriated. The system was somewhat relaxed after the 10th of October with decidedly unfavourable financial results to Government, but some benefit to the cultivators. It was remarked in last year's report that efforts were made to remove all well-founded grounds of complaint brought to light during the sittings of the Sone Canal Committee, and this policy was continued during the year. It is fully recognized that lasting contentment will only result by securing irrigating cultivators full crops, and that anything short of this standard will, whatever may be the measure of the benefits derived compared with the water-rates paid, lead to complaints which, though ill-founded, are to be avoided."

65. The areas actually irrigated in each of the executive divisions during the last five years are shown below:—

Eastern Sone Division.				Arrah Division.				Buxar Division.				Total for all Divisions.			
Annual leases.				Annual leases.				Annual leases.				Annual leases.			
Kharif and rabi.	Sugarcane and hot-weather.	Five-year leases.	Total.	Kharif and rabi.	Sugarcane and hot weather.	Five-year leases.	Total.	Kharif and rabi.	Sugarcane and hot weather.	Five-year leases.	Total.	Kharif and rabi.	Sugarcane and hot weather.	Five-year leases.	Total.
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
46,831	1,328	25,136	73,295	97,490	4,556	82,573	184,619	64,998	4,337	43,801	113,047	208,980	10,721	151,510	370,601
20,294	1,041	27,945	49,280	54,998	6,821	95,232	157,021	50,149	13,522	56,607	120,279	137,102	21,384	179,784	332,570
11,869	1,218	34,194	47,279	21,710	20,309	98,737	140,747	13,105	5,288	61,625	80,078	46,744	26,904	194,556	268,204
29,309	679	40,123	61,261	25,982	13,079	102,423	141,484	38,715	6,362	67,618	112,695	85,026	20,120	210,164	315,380
29,470	408	37,117	66,995	53,200	11,591	101,489	165,549	57,700	4,363	61,436	124,505	139,445	16,362	200,102	355,909

The reduction in the area under five-year lease is due as has been mentioned in paragraph 62 above to leases being refused where the channels were not in good order or the blocks unsuitable. In some cases applications were withdrawn, as the cultivators were unwilling to accept the outlets proposed which are now recorded in the permit.

The proportion of *flow* to *lift* irrigation for the last five years is shown below:— Flow and lift.

	1888-89.		1887-88.		1886-87.		1885-86.		1884-85.	
	Flow.	Lift.	Flow.	Lift.	Flow.	Lift.	Flow.	Lift.	Flow.	Lift.
Proportion	93·4	6·5	95·2	4·8	96·5	3·5	95	5	93	7

DUTY OF WATER

66. The following statement shows the duty obtaining in the year under review and in the years 1887-88 and 1884-85:—

				Eastern Main Canal Series.	Arrah Canal System.	Buxar Canal System.	Western Main Canal Series.	Sone Canals.
1888-89	Kharif	Acres		55,559	120,758	70,605	191,363	246,922
		Duty on gross supply		48·4	68·7	80·1	71·8	65·2
	Rabi	Acres		15,547	47,165	56,982	104,147	119,094
		Duty on supply utilized		56·5	73·01	94·9	83·5	78·7
1887-88	Kharif	Acres		54,733	112,505	78,197	190,702	245,435
		Duty on gross supply		54·4	85·5	81·2	82·4	73·9
	Rabi	Acres		11,111	31,590	38,396	69,986	81,097
		Duty on supply utilized		43·9	65·9	84·9	75·09	68·5
1885-86	Kharif	Acres		39,532	1,24,441	80,661	205,102	244,634
		Duty on gross supply		45·4	88·7	97·0	93·6	79·9
	Rabi	Acres		12,324	44,946	47,371	92,317	104,641
		Duty on supply utilized		42·6	128·0	116·1	121·7	99·0
1884-85	Kharif	Acres		61,849	133,307	75,266	208,573	270,422
		Duty on gross supply		47·1	79·1	74·3	74·2	65·6
	Rabi	Acres		13,103	64,125	45,734	109,859	122,962
		Duty on supply utilized		37·2	142·5	157·7	148·4	112·6

N B.—Sugarcane is included in both kharif and rabi.

As the year 1884-85 was that in which the largest area was irrigated, it has been selected for comparison in place of 1886-87, which was a year of such plentiful rainfall that as stated last year its results are not of much value as standards of comparison.

The main result for 1888-89 the duty in the kharif season for the Sone canals, 65·2 acres, per cubic foot per second of gross supply approaches very nearly to 65·6, the figures for 1884-85, although in the latter year the rainfall was much more favourable.

For a short base, ten days (11th to 20th October 1889) against fourteen days (29th September to 12th October 1887), the duty *on the rice crop alone* for the Sone canals falls to 42·3 acres in 1888-89, against 45 acres in 1887-88.

In the Arrah Division the quantity of canal water utilized in irrigation during the four months July to October is calculated by Mr. Inglis, Executive Engineer, Arrah Division, to be equivalent to 2·93 feet over the area watered in 1888-89, and 2·6 feet in 1887-88. Taking the drainage area, it is equivalent to 7·2 inches of rainfall of effective rainfall, against 5·7 inches in the previous year.

The Superintending Engineer gives the particulars tabulated below regarding some experiments carried out in the Arrah Division on the quantity of water used in irrigating definite areas from specified outlets:—

Distributary.	Size of outlet.	Number of days discharging.	Average discharge.	Area irrigated.	Area irrigated per cubic foot per second.	Date from which open.
Bichiaon	9″×12″	11	2·8	54·15	2·76	2nd October 1888.
Kaithi	9″ diam	11	2·37	45·6	1·74	6th August ,,
Kaithi	Same outlet	11	2·72	42·28	1·41	23rd Sept. ,,
Kaithi	6″ diam.	12	1·09	21·0	1·6	Ditto ,,
Behcea R P. C.	15″×18″	9	3·46	116·4	3·46	3rd October ,,

The results are discordant, and the omission of information as to the nature of the soil, the distance of the outlet from the block irrigated, the number of days elapsed since the last irrigation and since the last rainfall, and the extent of the latter in inches, &c, prevents any useful deductions being made. At the same time the experiments point to a direction in which much useful work can be done, as with a demand in the kharif season, which even now the canals are unable to meet it, is imperative that whilst a sufficient supply of water shall be allowed the utmost economy, which can only be effected at the outlet, should be practised.

The duty in the rabi season was slightly higher than in the previous year. The matter is not of practical importance, as the area of rabi crops irrigated did not nearly approach that for which water was available.

CROP EXPERIMENTS.

67. The results of experiments carried out by canal officers on the outturn of crops irrigated by canals and otherwise have been noticed in former reports The evidence given before the Sone Canals Committee showed that the value of these experiments was questioned, and accordingly in 1888-89 the matter received more than ordinary care. The extract from the Superintending Engineer's report quoted below deals with the difficulties experienced in obtaining comparative results, and narrates the course pursued during the year under review:—

"Former reports have compared the yield of crops irrigated by the canals and those matured without their aid. It has always been recognized that crop experiments, whilst valuable as showing the quantities of grain and straw produced in each case, could not be relied on as an absolute test of the producing power of the land under canal and non-canal irrigation. It was not possible to select plots cultivated under precisely similar conditions, differing only in the means of irrigation employed, and in many parts of the country it was difficult to find rice crops not under canal irrigation. Again, it had been asserted before the Sone Canals Committee that not only was the crop produced by the aid of canal water inferior, but that the longer the land was irrigated, the less the produce became. Complaints were also made that the experiments were not conducted under conditions where the public could have the opportunity of being present and watching the process. Independently of the circumstances of the year, it had been determined to confine the experiment for the most part to canal-irrigated crops, and, as a matter of fact, no other course would have been possible, as rice crop over the area commanded failed where canal irrigation was not available.

"The services of a Covenanted Civilian were placed at the disposal of the Public Works Department, so that the result of a series of experiments carried out by an officer not belonging to the Canal Department might be recorded. The co-operation of Messrs. Burrows, Thomson and Mylne, who have always been ready to assist, in every way, the officers of the Irrigation Department, was solicited, and the Collectors of the districts concerned asked to instruct Subdivisional Magistrates to themselves make a few experiments if possible. In the case of experiments carried out by canal officers, the nearest Magistrates, as well as zemindars and ryots, were asked to be present. The publicity thus given to the experiments did not, in all cases, meet with the approval of the cultivators, who would have preferred the matter to have remained a subject of controversy. The instructions issued were to the effect that the crops experimented on should be good crops, and that the weighment should take place on the field."

The results of the experiments are given in the table which follows, which is abstracted from the figures contained in Mr Luson's report:—

Crop.	Name of officer conducting experiments.	Number of experiments.	Average yield, dhan.	Number of experiments.	Average yield, straw.
			Mds. s.		Mds. s.
Transplanted ...	Mr. H. Luson, c s. ...	25	33 $39\frac{15}{25}$	25	47 $17\frac{11}{25}$
Aghani dhan ...	Messrs Burrows, Thomson, and Mylne	26	31 $5\frac{11}{13}$	26	52 $22\frac{8}{13}$
	Canal Subdivisional Officers	33	35 $6\frac{37}{44}$	31	68 $14\frac{15}{15}$
	Canal subordinates ...	138	31 $30\frac{175}{138}$	134	55 $38\frac{11}{13}$
Kartika dhan...	Mr. H. Luson, c.s. ...	3	35 $1\frac{1}{3}$	3	46 $36\frac{4}{75}$
	Messrs. Burrows, Thomson, and Mylne	25	26 $37\frac{7}{24}$	25	46 $5\frac{107}{225}$
	Mr. G. C. Maconochy, c.s. ...	2	31 $4\frac{1}{6}$	2	56 $29\frac{1}{6}$
	Subordinate, Agiaon ...	1	14 $19\frac{1}{3}$	1	33 6
Broadcast dhan	Mr. H. Luson, c.s. ...	2	22 22	2	31 $22\frac{6}{25}$
	Messrs. Burrows, Thomson, and Mylne	1	23 14	1	36 32
	Canal Subdivisional Officers	3	37 $11\frac{1}{9}$	1	54 0
	Canal subordinates ...	2	33 $7\frac{1}{3}$	2	39 $13\frac{1}{3}$
	Average ...	261	31 $32\frac{9}{16}$	253	54 $32\frac{1}{4}$

The figures given above are not the actual weighments, but the weighments reduced by one-twelfth in the case of dhan and one-third in the case of straw in those cases where the crop was weighed wet on the field, this representing the loss which Mr. Luson found by actual experiment to occur in drying.

It must not be forgotten that the experiments were not on the yield of average crops, which were those selected in former years, but of the yield of the best crops. Mr. Luson, however, states that after a personal inspection of

nearly half the whole irrigated area in Shahabad, Patna, and Gya, he estimates the average outturn of irrigated dhan for the year to be $18\frac{7}{10}$ maunds of paddy per acre, or $12\frac{7}{15}$ maunds of rice.

The average of 1,227 experiments made by canal officers and subordinates from 1880-81 to 1887-88 on the yield of *average* crops is $16\frac{5}{20}$ maunds per acre of paddy, against $18\frac{7}{10}$ maunds, the yield of *average* crops in 1888-89, as estimated by Mr. Luson, based on experiments on good crops. Of the 25 experiments carried out by Mr. Luson himself, 23 were on land which had been continuously irrigated for nine years and upwards, and 16, by either Mr. Luson or Messrs. Burrows, Thomson, and Mylne, were on crops produced on *kerail* soil which has been stated to be unsuited for canal irrigation; the average yield of good crops being, nevertheless, 34 maunds $15\frac{7}{16}$ seers.

The fact that almost any soil will under favourable circumstances if regularly irrigated produce 34 maunds of dhan per acre can scarcely for the future be questioned.

In wheat, 57 experiments were made, and the balance both in grain and straw is in favour of canal water; but this result is reversed in three experiments made on barley.

DEMANDS AND COLLECTIONS.

68. The following statement shows the demands, collections, and balance of water-rates for the last five years:—

YEAR.	DEMAND.			Remissions.	Net demand.	Collections.	Balance.	Percentage of collections to current demand.
	Arrears	Current.	Total.					
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1884-85	4,23,793	11,15,399	15,39,192	73,625	14,65,567	7,70,359	6,95,208	69·0
1885-86	6,95,208	8,07,702	15,02,910	1,26,266	13,76,644	9,78,323	3,98,321	121·1
1886-87	3,98,321	6,95,086	10,93,407	35,364	10,58,043	8,26,461	2,31,582	118·9
1887-88	2,31,582	7,25,810	9,57,392	26,525	9,30,867	5,19,586	4,11,281	71·5
1888-89	4,11,281	7,55,217	11,66,498	24,329	11,10,169	7,59,556	3,80,613	100·8

As usual, the figures given above are taken from those compiled by the Examiner of Accounts. The balance at the commencement of the year agrees exactly, and that at the close of the year very nearly, with the figures given by the Commissioner and Collector; there are differences in the remaining columns which approximately balance each other, the discrepancy at the close of the year being Rs. 4 only. The current demand includes Rs. 1,45,277 which, though due, are not legally recoverable until after the 1st of April.

ARREARS.

69. The extent to which not only the current demand, but also the arrears of 1887-88 and earlier years have been worked off, is shown in the statement following. The figures are obtained from statements attached to the Commissioner's report:—

	Demand of 1888-89 how composed.	Collected or remitted.	Percentage of demand adjusted.	Balance outstanding at close o year.
	Rs.	Rs.		Rs.
Arrears of 1885-86 and previous years... ...	33,330	16,648	49·9	16,682
„ 1886-87	25,848	17,066	66·0	8,782
„ 1887-88	3,52,103*	2,95,630	83·9	56,473
Total of arrear demand outstanding on 1st April 1888	4,11,281	3,29,344	80·0	81,937
Current demand of 1888-89...	7,50,340	4,51,660	60·2	2,98,680†
Gross demand, including arrears	11,61,621	7,81,004	67·2	.....
Total outstanding at close of year	.....	.....	.....	3,80,617†

* Includes Rs. 1,80,559 not legally recoverable within the year 1887-88.

† Includes Rs. 1,45,277 not legally recoverable within the year 1888-89.

There has been a small diminution in the arrear balance on the 1st of April 1889, as compared with that on the 1st of April 1888. The balance due on account of the year immediately preceding that current has increased from Rs. 25,846 to Rs 56,423, whilst the balance an account of previous years has been reduced from Rs. 33,329 to Rs. 25,464.

The effect of the agitation which led to the appointment of the Committee had an unfavourable effect on the collections of the year, the Collector of Shahabad giving it as his opinion that "the work was thrown back by nearly two years." He adds "that instances have come to the notice of our officers where the rate-payers of certain villages expressed their regret that they ever joined the agitation and withheld payment, inasmuch as the pressure of accumulated arrears was too much for them." As regards the current year's demand, the Superintending Engineer notices that the demand statements reached the Collector at a later date than usual, a result ascribed to two causes—1st, the detention of demand statements including items to which objections had been preferred until a decision had been arrived at, and 2nd, the increased area under irrigation. Complaint is made in the Collector's reports of the delay which, as noted above, occurred in the receipt of the demand statements, the reasons given by the Sub-Engineer for their late despatch must be accepted as fairly satisfactory.

70. The following statement compares by districts the operations of the year under review with those of the preceding year:—

District.	ARREARS DUE FOR IRRIGATION EFFECTED IN PREVIOUS YEARS.				DEMANDS FOR IRRIGATION EFFECTED IN 1888-89.			
	Percentage of total demand.				Percentage of total demand.			
	Demand.	Collections.	Remissions.	Outstanding at end of year.	Demand.	Collections.	Remissions.	Outstanding at end of year.
Shahabad—								
1888-89	100·0	78·7	4·8	16·3	100·0	66·2	0·3	33·4
1887-88	100·0	66·0	13·8	20·2	100·0	54·8	0·7	44·5
Patna—								
1888-89	100·0	53·2	8·7	38·0	100·0	18·0	0·02	81·3
1887-88	100·0	45·5	5·6	48·9	100·0	22·0	0·2	77·8
Gya—								
1888-89	100·0	88·4	0·3	11·2	100·0	48·6	1·0	50·3
1887-88	100·0	89·0	1·7	9·3	100·0	42·2	0·2	57·6
Average—								
1888-89	100·0	74·0	5·1	19·0	100·0	59·8	0·3	39·8
1887-88	100·0	64·8	9·7	25·5	100·0	50·7	0·5	48·8

The Commissioner of Patna makes the following observations on the percentage of the total demand, arrears and current, collected during the year:—

"From the above figures it will be seen that in Shahabad 72 per cent. of the total demand was adjusted during the year under report—a result which may be considered fair; while the adjustment in Patna was only 41, which is not satisfactory. The Collector of Patna states that the present circle officer has effected some improvement in the collections, but there is yet much room for further improvement."

The Executive Engineer of the Eastern Sone Division states that the delay in recovering arrears must cause loss of revenue to Government, and has generally a demoralizing effect on the cultivators.

If the demands received in March, which are practically not recoverable during the year, are excluded, the percentage of collections to the total demand, including arrear balances, is for Gya 65 per cent., Patna 38 per cent., and Shahabad 77 per cent.

The result of the year's collecting operations has been good in Shahabad, fair in Gya, but very bad in Patna.

REMISSIONS.

71. The remissions granted during the year are Rs. 2,196 less than those of the preceding year, as shown below:—

	1888-89.	1887-88.
	Rs.	Rs.
By canal officers	10,776	6,911
By civil officers	13,553	19,614
Total ...	24,329	26,525

The statement above is based on the figures contained in the Examiner's accounts.

For the purpose of comparing the accuracy of the demand statements of the year with those of that previous it is necessary to take into account refunds and cancelled demand statements not replaced by others of equal amount. Taking into account these items, which are equally remissions and excluding remissions by civil officers the figures for the last two years are shown below:—

	Rs.
1888-89	16,234
1887-88	18,813

Remissions by civil officers are those arrears which it was found necessary to write off as irrecoverable owing to the persons assessed having absconded or become bankrupt.

The remissions by canal officers may be divided thus:—

	Percentage of remissions and refunds to gross demand.	
	1888-89.	1887-88.
Eastern Sone Division	1·09	0·74
Arrah Division	0·72	1·95
Buxar Division	1·20	1·24

showing, except in the case of the Eastern Sone Division, a further advance on last year's results, which were considered to be satisfactory.

From the Examiner's accounts it would appear that the totals of refunds, remissions and irrecoverable item amounted to Rs. 36,940 in 1888-89 and Rs. 41,856 in 1887-88. These are *actuals* and include items of former years finally dealt with in 1888-89. On this question of remissions and refunds further information is necessary, so as to show what percentage of the assessments of any year are finally remitted, refunded or written off as irrecoverable. The percentage in Bengal on account of the peculiar circumstances under which irrigation there is effected, must always be considerable as compared with other Provinces, but undoubted progress is being made, and it is desirable to show this. The matter should not be lost sight of.

REVENUE ESTABLISHMENT.

72. The expenditure on the Revenue establishments employed during the last two years is shown below:—

	1888-89.		1887-88.	
	Amount.	Percentage on collections.	Amount.	Percentage on collections.
	Rs.		Rs.	
Permanent and temporary establishments, such as zilladars, ameens, &c. ...	(*a*)54,325	7·15	(*b*)53,254	10·25
Establishment employed under Collectors ..	33,316	4·38	30,466	5·85
Headmen's and patwaries' fees ...	70,608	9·30	51,523	9·92
Total ...	1,58,249	20·83	1,35,243	26·02

(*a*) Inclusive of Rs. 2,270 for water regulation establishment.
(*b*) Ditto 2,334 ditto ditto.

The above figures have been taken from the Examiner of Accounts' memorandum.

78. COMPARISON OF TRAFFIC. TRAFFIC.

		1888-89.	1887-88.	1886-87.	1885-86.	1884-85.
Number of miles open ...	No.	218½	218½	218½	218½	218½
Toll collections ...	Rs.	52,412	51,542	49,936	41,719	37,395
Rate of toll per mile ...	„	240	236	229	191	171
Boats, including empties ...	No.	8,096	8,116	8,573	7,210	6,434
Tonnage of boats ...	Tons	103,788	95,082	104,835	77,006	61,744
Estimated value of cargo, including rafts ...	Rs.	58,04,029	56,80,508	64,65,651	36,41,863	41,10,598

The decrease in the tollage levied on the Patna canal system, which is wholly under the head Tollage on rafts, is more than covered by increased tollage assessed during the year in the other canal systems. The decreased tollage on rafts is stated to be due to the stock of bamboos at Patna being in excess of the demand. The remaining variations do not appear to call for remark.

79. The expenditure on navigation establishment was Rs 13,071, against Rs 13,212 in the previous year NAVIGATION ESTABLISHMENT.

80. There is no Government Steam Transport Service on the Sone canals, but three steamers, the property of Government, are hired to a contractor, who maintains a weekly service on the Patna canal, and a bi-weekly service on the Arrah and Buxar canals. The services are regularly maintained, and are understood to be popular, though the speed, owing to various considerations, is slow, barely averaging, including stoppages, four miles an hour. TRANSPORT SERVICE.

81. The miscellaneous receipts for the last five years are given in the following statement:— MISCELLANEOUS RECEIPTS

		1888-89.	1887-88.	1886-87.	1885-86.	1884-85.
		Rs.	Rs.	Rs.	Rs.	Rs.
Sale of water		387	370	702	1,742	582
Plantations		383	394	319	307	178
Other canal produce		1,816	2,145	2,904	2,424	1,339
Water power		835	708	668	469	488
Rent of buildings		8,247	7,197	7,198	7,213	6,409
Fines		224	317	169	653	734
Miscellaneous	Rent of lands	7,995	10,997	15,231	14,369	13,770
	Fisheries	734	502	565	421	732
	Cost of process	3,739	2,474	6,302	6,414	7,066
	Sale of old materials	102	60	443	355	405
	Other items	2,042	3,295	3,213	3,713	8,651
	Total	26,504	28,459	37,714	38,080	40,354

The only considerable decrease has been under the head rent of lands. It was last year explained that it had been found necessary to retain possession of land likely to be required for repair purposes owing to difficulties experienced in reclaiming it when required.

82. The state of the plantations in each division at the close of the years 1887-88 and 1888-89 is shown in the following statement:— PLANTATIONS.

Division.	1888-89.				1887-88.				Increase.	Decrease.
	Trees over 12 feet in height.	Saplings between 4 and 12 feet.	Seedlings under 4 feet.	Total.	Trees over 12 feet in height.	Saplings between 4 and 12 feet.	Seedlings under 4 feet.	Total.		
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Eastern Sone	71,478	30,308	53,530	155,276	64,280	28,334	59,440	152,054	3,222	...
Arrah	35,871	23,379	61,014	120,264	31,503	15,274	54,944	101,021	19,247	...
Buxar	13,488	6,972	23,396	43,716	9,693	14,765	18,327	42,785	931	...
Total	120,737	60,719	137,854	319,360	105,476	58,373	132,911	295,860	23,500	...

The expenditure on plantations was Rs. 8,929, and the receipts Rs. 383 against Rs. 8,300 and Rs. 394, the respective amounts in the previous year The plantations have not yet arrived at a stage in which any substantial sum

can be expected to be received as earnings, but there is a satisfactory progressive increase in the number of trees which require little or no outlay in keeping up.

FINANCIAL RESULTS.

83. The receipts on revenue account and working expenses of the Sone Canals for the year 1888-89 and the nine preceding years are shown in the statement below:—

	1888-89.	1887-88.	1886-87.	1885-86.	1884-85.	1883-84.	1882-83.	1881-82.	1880-81.	1879-80.
Receipts.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Water-rates	7,59,556	5,19,586	8,20,461	9,78,323	7,70,359	4,84,209	5,00,455	6,03,930	3,78,200	4,44,716
Navigation	57,829	55,904	54,254	46,243	51,761	86,193	73,206	93,116	61,145	39,850
Miscellaneous	26,504	25,429	37,714	38,080	40,384	34,405	47,007	39,246	39,933	47,013
Total ...	8,43,889	6,03,919	9,18,429	10,62,646	8,62,474	6,03,807	6,64,677	7,36,292	4,78,644	5,31,589
Less refunds of revenue	12,611	15,331	15,737	10,057	7,455	5,429	1,237	1,329	1,637	1,945
Net total receipts ...	8,31,278	5,88,618	9,02,692	10,51,989	8,55,019	5,98,378	6,63,440	7,34,963	4,77,007	5,29,643
WORKING EXPENSES.										
DIRECT CHARGES.										
I.—Works, Maintenance and Repairs.										
Works (extensions and improvements).	10,426	5,532	...	..	...	...	..	...	...	...
Repairs, including compensation.	3,28,182	3,08,448	3,08,705	2,83,315	3,44,838	2,76,335	3,17,991	2,60,891	2,85,049	1,91,820
Establishment, including direction and accounts.	1,97,677	2,10,227	71,066	65,163	79,300	63,477	73,042	63,943	71,610	41,020
Tools and plant	33,020	28,221	27,698	32,451	26,175	34,983	11,898	3,198	380	4,586
Total ..	5,70,205	5,52,428	4,07,529	3,80,929	4,50,313	3,74,795	4,02,841	3,28,032	3,57,039	2,38,335
II.—Revenue Management.										
Irrigation establishment	1,58,249	1,35,243	1,43,660	1,46,028	1,29,308	1,14,005	1,05,883	1,14,988	1,02,476	1,06,534
Navigation establishment.	14,105	14,308	14,535	14,756	16,885	20,218	19,880	13,678	10,618	10,483
Total ...	1,72,354	1,49,551	1,58,195	1,60,784	1,46,193	1,34,253	1,25,763	1,27,961	1,13,094	1,17,017
Total direct charges ...	7,42,619	7,01,979	5,65,724	5,41,713	5,96,506	5,09,048	5,28,604	4,55,993	4,70,133	3,55,352
*Indirect charges.**										
Capitalization of abatement of land revenue.	...	...	...	...	...	...	...	...	...	...
Leave and pension allowances.	51,813	50,369	32,097	31,632	31,569	27,682	19,933	32,871	31,638	27,326
Total indirect charges ...	51,813	50,369	32,097	31,632	31,569	27,682	19,933	32,871	31,638	27,326
Total working expenses ..	7,94,432	7,52,348	5,97,821	5,73,345	6,28,075	5,36,730	5,48,537	4,88,864	5,02,571	3,82,678
Net revenue	36,846	(—)1,63,730	3,04,871	4,78,644	2,26,944	61,648	1,14,903	2,46,099	(—)25,564	1,47,065

* These are now shown under the suggestion of the Government of India.

Compared with 1887-88, the net revenue is Rs. 36,846 against a deficit of Rs. 1,63,730, which is mainly due to the increase in the total receipts from Rs. 5,88,618 to Rs. 8,31,278.

The working expenses during the year have exceeded those incurred in any year up to date, and, considering the small revenue derived from the canals, it is essential that any increase under this head shall be jealously watched.

In respect to the area irrigated, the year has been compared with 1884-85, and on referring to the table above it will be seen that the working expenses were Rs. 6,28,075 in that year, against Rs. 7,94,432 in 1888-89, showing an increase of Rs. 1,66,357, out of which Rs. 118,377 is in one item—"Establishment employed on maintenance, including direction and accounts." This increase in cost is apparent only. In 1884-85 a charge of 23 per cent. on the expenditure incurred on maintenance and repairs was made the balance being debited to the provincial establishment Roads and Buildings Branch, whilst at present the actual cost of the establishment employed, which is less than that actually engaged on the same work in the former year, is debited to this head. The new method of charging establishment has in fact added upwards of Rs. 1,10,000 to the permanent yearly working expenses of the Sone canals.

In 1888-89, Rs. 10,426 was expended on Extensions and Improvements, whilst in 1884-85 there was no expenditure under that head.

Under the head Maintenance, the expenditure in 1884-85 was Rs. 16,656 in excess of that incurred during the current year.

The expenditure on Tools and Plant was in excess in 1888-89 by the sum of Rs. 7,745, chiefly owing to the increased number of dredgers and mud punts now in use.

There is a small increase in the expenditure on the establishment employed under both the Engineers and Collectors, due to the larger area irrigated and the increased collections. The increased sum disbursed on account of headmen's fees includes Rs. 10,949 wholly in the Arrah Division of arrears previous to 1887-88 disbursed in 1888-89, and to that extent the expenditure is unduly high; the remaining increase is a consequence of the increase in the area irrigated and in the collections.

73. The following statement shows the approximate cost of measuring lands brought under assessment during the year under review and of preparing demand statements :— COST OF MEASUREMENTS, &C., PER ACRE.

DIVISIONS.	Areas measured during the year and assessed.	COST OF MEASURING CROPS.		COST OF PREPARING DEMAN STATEMENTS.	
		Total.	Per acre.	Total.	Per acre.
	Acres.	Rs.	Pies.	Rs.	Pies.
Eastern Sone	24,356	713	3·98	1,017	5 68
Arrah	70,483	2,838	7 73	2,518	6·85
Buxar	72,469	2,483	6 57	1,630	4·32
Total, 1888-89 ...	177,308	6,034	6·53	5,165	5 59
Total, 1887-88 ...	161,069	5,533	7 09	4,594	5·83

It will be seen from the above table that the increase in the area assessed has been followed by a reduction in the cost per acre of making the assessment.

74. The Superintending Engineer has attached to his report very complete lists of complaints and applications received during the year divided under three main heads:—(I) Objections to demand statements or ordinary applications for remission; (II) Complaints against orders actually passed other than those imposing an assessment; (III) Applications in connection with irrigation not involving complaints against orders passed by or the action of canal officers. Both complaints and applications are classified under numerous heads and sub-heads in appendices XIV and XV to the Superintending Engineer's report. In former years a less elaborate classification was adopted, but the numbers of complaints for the last two years can to a certain extent be classified under the main heads mentioned above, and figures showing the results are given in the subjoined table :— COMPLAINTS.

DIVISION.	(I.)—ORDINARY REMISSION.				(II TO IV.)—OTHER COMPLAINTS.			Total complaints received during year, excluding those pending from previous year.	Pending
	Received during the year and pending from previous year.	Disposed of.		Pending.	Received during the year and pending from last year.	Disposed of.	Pending.		
		Remission allowed.	Remission refused.						
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Eastern Sone ...	1,512	493	550	470	56	47	9	1,518	479
Arrah	3,591	1,094	1,502	995	441	357	84	3,688	1,019
Buxar	1,867	624	939	404	220	207	13	1,864	417
Total, 1888-89 ...	6 970	2,201	2,990	1,869	717	611	106	7,070	1,915
Total, 1187-88 ...	6,748	2,385	3,838	025	Not recorded.				

Of the 5,161 complaints regarding assessment disposed of, remission was allowed in 42·6 per cent. of the cases, against 37 3 per cent. in the previous year. The Superintending Engineer remarks that the small increase in the number of complaints is apparent rather than real owing to the fact that not unfrequently the same complaint is made to the Subdivisional Officer, the Executive Engineer, the Collector, and the Superintending Engineer, each of which now appears as a separate number in the register. The demand for water in October for new irrigation also led to many complaints, as the cultivator is never satisfied to pay water-rates unless the crop is satisfactory, and this was necessarily not the case where water was applied for and received at the last moment. The explanation may be accepted as sufficient as regards the apparent increase in the numbers of complaints, there being no doubt that it is due to a more rigid enumeration of the number of complaints, and the character of the season being such as to induce objections to the assessments. The same cannot, however,

be said as to the number of complaints pending at the close of the year, especially in the Arrah Division, for which no sufficient reason has been given.

APPEALS. 75. During the year 23 appeals against the orders of canal officers were prefered to the Collector; of these 3 were allowed, 15 dismissed, and 5 pending at its close.

CERTIFICATE PROCEDURE. 76. The number of certificate cases filed and disposed of during the year under review, as compared with the year preceding, in the districts of Shahabad, Patna, and Gya, is shown below:—

	Shahabad.				Patna.				Gya.			
	1888-89		1887-88.		1888-89.		1887-88.		1888-89.		1887-88.	
	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
		Rs.		Rs.		Rs.		Rs.		Rs.		Rs.
Cases for disposal—												
1. Cases pending at the close of the preceding year.	967	17,943	6,092	44,195	4,045	21,154	2,421	14,058	167	2,991	48	417
2. Cases instituted during the year	2,948	36,974	1,617	25,295	1,129	6,103	3,802	13,811	139	9,044	244	3,230
Total ...	3,915	54,917	8,309	69,490	5,174	27,257	6,223	27,869	306	12,035	292	3,647
Cases disposed of—												
1. By being struck off owing to the demand having been remitted.	516	5,512	2,846	16,054	1,425	4,226	465	1,943	80	4,403	80	205
2. By being wholly satisfied ...	2,879	42,838	4,466	35,493	1,427	3,496	1,713	4,773	116	577	95	451
Total ...	3,395	48,350	7,312	51,547	2,852	7,722	2,178	6,715	206	5,040	125	656
Balance outstanding at the close of the year.	520	6,567	997	17,943	2,323	19,535	4,045	21,154	100	6,995	167	2,991

From the above it will be seen that inclusive of 5,179 cases pending at the commencement of the year, there were 9,395 for disposal, covering a sum of Rs. 94,207. In 2,031 cases for Rs. 14,200 the demand was remitted, whilst in 4,422 for Rs 46,910 the demand was fully satisfied. The number of cases pending at the close of the year was 2,942, the sum outstanding being Rs. 33,097. The Collector of Shahabad observes that remissions were mostly due to the cases covering bad and irrecoverable debts, and draws attention to the satisfactory decrease, compared with the preceding year, in the number of cases pending at its close. The excessive percentage of cases struck off in the Patna district is probably not unconnected with the delay in making collections, commented on in paragraph 65 of this note.

NAVIGATION RECEIPTS. 77. The tables below show the navigation revenue and tollage receipts for the last five years:—

NAVIGATION RECEIPTS.

Year.	Eastern Main Series.			Western Main Series.			Total.	Total tollage only.
	Number of miles open.	Tollage receipts.	Transport service receipts.	Number of miles open.	Tollage receipts.	Transport service receipts.		
	No.	Rs	Rs.	No.	Rs.	Rs.	Rs.	Rs.
1884-85	86½	23,055	1,304	132½	14,280	13,122	51,761	37,335
1885-86	86½	19,579	...	132½	22,133	4,531	46,243	41,712
1886-87	86½	22,506	54*	132½	27,159	4,535*	56,254	49,965
1887-88	86½	27,622	96*	132½	23,363	4,823*	55,904	50,984
1888-89	86½	24,876	60*	132½	27,286	5,607*	57,829	52,162

* There is no longer any Government transport service. These receipts are on account of hire of steamers, boats, and sundries.

TOLLAGE (ASSESSED).

Year.	Patna Canal System—Eastern Main Canal Series.	Arrah Canal System.	Buxar Canal System.	Total.
	Rs.	Rs.	Rs.	Rs.
1884-85	23,142	10,316	3,937	37,395
1885-86	19,523	14,808	7,388	41,719
1886-87	22,646	18,289	9,001	49,936
1887-88	28,206	15,306	8,030	51,542
1888-89	25,165	18,421	8,826	52,412

Under the head Revenue Management irrigation establishment there is an excess of Rs. 28,941 in 1888-89 wholly on the item headmen's fees. The actual expenditure on irrigation establishment was Rs. 1,07,411 in 1884-85 and Rs. 85,371 in 1888-89.

There was a reduction of Rs. 2,720, compared with 1884-85, under the head Navigation establishment.

Setting aside former years, there was special expenditure in 1888-89 on the following items:—

I.—Substituting masonry arches in place of wooden platforms in the case of 14 bridges over the Chowsa and Gurra Chowbey Canals.

II.—Rebuilding the piers of the river sluices on the Dehree side of the Sone weir. On this work Rs. 50,024 were expended during the year.

III.—The payment of one year's arrears of headmen's fees, amounting to Rs. 10,949, for 1886-87 in the Arrah Division.

In future years, now that the whole of the piers of the river sluices of the Sone weir have been reconstructed, the expenditure on works (extensions and improvements and maintenance) should be kept within Rs. 3,00,000, and there ought also, compared with 1888-89, to be a reduction of Rs. 10,000 in the item headmen's fees.

84. The cost of repairs to head-works during the last five years is shown below:— REPAIRS TO HEAD WORKS.

	1888-89.	1887-88.	1886-87.	1885-86.	1884-85.
	Rs.	Rs	Rs.	Rs.	Rs.
Sone weir	63,245	47,160	68,570	34,908	29,922
Other works	10,097	12,997	10,419	7,697	9,462
Total ...	73,342	60,147	78,989	42,605	39,384

The extra cost of maintaining the head-works was wholly due to special expenditure, amounting to Rs. 50,024, on the remodelling of the Dehree river sluices of the Sone weir. Work on rebuilding the piers was commenced in December, and the whole of the masonry work completed by the 31st March; the gates and fittings were finished before the present rains; the total expenditure on the new piers was Rs. 56,826. The whole of the piers of the river sluices of the Sone weir have now been rebuilt. Excluding special repairs to the river sluices, the expenditure on the head-works was Rs. 23,318 in 1888-89, against Rs. 25,139 in 1887-88.

85. The outlay on main canals and distributaries in each division during the last two years is shown below:— MAINTENANCE OF MAIN CANALS AND DISTRIBUTARIES.

	Arrah Division.		Buxar Division.		Eastern Sone Division.	
	1888-89.	1887-88.	1888-89.	1887-88.	1888-89.	1887-88.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs
Western Main canal	44,298	42,388	20,109	10,456	...	...
Eastern ditto	...	...	...	...	22,722	30,672
Canals	34,443	25,717	10,766	11,686	23,015	26,395
Branch canals	14,559	16,874	14,206	12,710	...	...
Distributaries	29,453	27,136	15,172	12,604	17,216	19,806
Drainage and protective works ...	2,358	3,044	153	888	2,753	2,944
Total ...	1,25,111	1,15,159	60,406	47,844	65,706	79,817

These figures are taken from the Superintending Engineer's report. The cost of maintenance, excluding head-works and telegraph lines, is Rs. 2,51,223, against Rs. 2,42,820 shown last year.

Both in the Arrah and Buxar Divisions the expenditure during the year was more than that of the year 1887-88. The increase is mainly due to special silt clearing in the 9th to the 13th miles of the Main Western canal and in miles 28 to 58 of the Arrah canal which had not been carried out for many years. The renewal of the Pakri bungalow roof with iron beams has also contributed

somewhat towards the excess expenditure. The outlay in the Eastern Sone Division was Rs. 14,111 less than in the year preceding.

SILT CLEARING AND DREDGING.

86. The quantity of silt dredged from the Eastern and Western Main canals, and the rate at which the work was done during the last two years, are given below :—

CANALS.	1888-89.			1887-88.		
	Cubic feet dredged.	Cost, including removal over spoil bank or discharge into river.	Rate per 1,000 cubic feet.	Cubic feet dredged.	Cost, including removal over spoil bank or discharge into river.	Rate per 1,000 cubic feet.
		Rs.	Rs. A. P.		Rs.	Rs. A. P.
Eastern Main and Patna	23,27,518	12,944	5 9 0	30,56,923	17,521	5 11 6
Western Main ...	75,44,478	49,724	6 9 5	77,69,055	46,049	5 14 10

The Superintending Engineer makes the following observations in the increase in rate per 1,000 cubic feet in the case of the Western Main canal, and on the charge for interest and depreciation adverted to in last year's report :—

The rates compare unfavourably with those of the previous year, when for the most important item, Main Western canal, the rate was Rs. 5-14-10 per 1,000 cubic feet of silt dredged. This is in part due to liabilities for 1887-88, amounting to Rs. 2,209,* having been paid in 1888-89. Deducting this amount from the whole expenditure for 1888-89 and adding it on to that of 1887-88, the rates for the Main Western canal become Rs. 6-5-4 per 1,000 cubic feet for 1888-89 and Rs. 6-2-11 for 1887-88. The rate for 1886-87 was Rs. 7-6-6 per 1,000 cubic feet. It may be added that during 1888-89 the work was spread over 13 miles instead of being confined to the first 9 miles of the canal as usual

* On 86,55,367 cubic feet dredged.

Turning to the cost of dredging only, leather belting and rope cost Rs. 3,693 in 1888-89 and Rs. 1,313 in 1887-88. The extra cost during the year was partly owing to silt having been to a greater extent than usual thrown into the river requiring an extra length of rope, and partly to the month in which the ropes and belting were renewed falling in 1888-89. The extra rate owing to this cause in the Main Western canal is annas 4-4 per 1,000 cubic feet Amongst other causes for the extra cost was Rs. 400 charged during the year for making a road through the spoil bank to the river.

The expenditure on repairs to dredgers was as follows :—

		Rs.
Fouracres' dredgers	(12)	7,704
Bruce's ,,	(2)	754
English ,,	(2)	4 300
Mud punts	(64)	2,870

If the total cost of dredging is required, the following sums, details regarding which are given in the Revenue Report for 1886-87, should be added to the rates mentioned above :—

	C. ft.	Rs. A. P.
For Fouracres' dredgers per	1,000	2 12 8
,, Bruce's ,,	,, 1,000	4 14 4
,, English ,,	,, 1,000	8 13 3
,, Mud punts ,,	,, 1,000	2 14 1

The dredgers are laid up during part of the year, but this will have no effect on the charge for interest and depreciation, as the number of dredgers and punts cannot be diminished, every dredger and mud punt at times during the rains barely sufficing to keep the canal open, and it is a question whether the dredgers do not suffer nearly as much when laid up as when at work : it is the difference between rubbing and rusting. In any case the interest would be the same, as the dredgers cannot be employed on other work. The dredging accounts are perhaps not in such detail as might be desired, but further minute accuracy would involve increased clerical establishment. Instructions will be given that in future liabilities and not payments only during the year are to be taken into account.

In future reports the actual cost based on liabilities should certainly be shown, and it would be well to show the number of days during which the dredgers have been employed and been laid up.

The quantity and cost of silt clearances by hand in the Eastern Main and Patna canals during the last two years is shown in the following table:—

	1888-89.			1887-88.		
	Cubic feet cleared by hand.	Cost.	Rate.	Cubic feet cleared by hand.	Cost.	Rate.
		Rs.	Rs. A. P.		Rs.	Rs. A. P.
Eastern Main and Patna canals ...	21,78,608	10,542	3 12 9	1,981,102	9,681	4 13 6

In the case of the Western Main canal, in addition to the charge for dredging, Rs. 3,460 was spent in the Arrah Division and Rs. 258 in the Buxar Division on silt clearing by hand.

In the Arrah canal silt clearing on a more extensive scale than usual was carried out during the year, the quantity removed by hand being 28¼ lakhs cubic feet at a cost of Rs. 8,282, and Rs. 1,444 was also expended on dredging silt accumulated in front of locks.

The expenditure incurred during the year on dredging and clearing silt in the branch canals and distributaries is shown below:—

	Rs.
Eastern Sone Division.	
Distributaries, Patna Canal System	1,359
Arrah Division.	
Doomraon branch canal	938
Behea branch canal	88
Distributaries	4,934
Drainage and protective works	813
Buxar Division.	
Buxar canal	453
Chowsa branch canal	56
Distributaries	479

87. The cost of weed-clearing for the last five years is shown in the following table:— WEED CLEARING.

	1888-89.	1887-88.	1886-87.	1885-86.	1884-85.
	Rs.	Rs.	Rs.	Rs.	Rs.
Eastern Sone Division	217	558	314	2,115	1,589
Arrah Division	1,725	3,342	2,218	2,491	3,976
Buxar ,, ...	869	1,015	2,065	77	...
Total ...	2,811	4,915	4,597	4,683	5,565

It will be seen from above table that the cost of weed clearing during the year was about half of that incurred during preceding year.

This decrease in expenditure is attributed partly to the heavy discharge of the canals in October, which had apparently some effect in retarding the growth of the weeds, and partly to the silt clearance in the lower part of the Arrah canal previous to the rains which, for the time being, destroyed nearly all the weeds there. In the previous year the weeds in these miles had been very troublesome.

88. The mileage rates of cost of repairs are worked out below both for canals and distributaries, and compared with the rates of the two previous years in the statement below:— MILEAGE RATES OF REPAIRS.

Canal.	Division.	1888-89.		1887-88.		1886-87.	
		Number of miles.	Cost per mile.	Number of miles.	Cost per mile.	Number of miles.	Cost per mile.
		No.	Rs.	No.	Rs.	No.	Rs.
Eastern Main Canal	Eastern Sone	7¼	3,134	7¼	4,230	7¼	2,245
Western ditto	Arrah	5	8,859	5	8,477	5	7,386
	Buxar	16¼	1,218	16¼	633	16¼	540
Buxar Canal	Do.	45¼	238	45¼	258	45¼	406
Patna do.	Eastern Sone	79	291	79	334	79	305
Arrah do	Arrah	65½	527	65½	392	65½	455
Doomraon Branch	Do.	40½	187	40½	242	40½	152
Behea ditto	Do.	31	226	31	229	31	182
Chowsa ditto	Buxar	30½	246	30½	195	30½	200
Gurra Chowbey Branch	Do.	38	119	38	131	38	131
Distributaries	Arrah	467½	63	467½	58	467½	54
	Buxar	343	44	341½	57	333½	53
	Eastern Sone	358	48	358	55	357	45

The increase in the mileage rates, where such occur, is wholly due to the larger quantity of silt removed, which is itself a consequence of the larger area irrigated during the last two years.

CLOSURES OF CANALS.

89. The Western Main series of canals were closed from the 1st to the 12th June 1888, the Eastern Main series from the 17th April to the 25th May 1888, and the Arrah canal from the 28th mile downwards from the 2nd May to the 12th June 1888.

FLOODS.

90. There were high floods during the year both in the river Sone and in the river Ganges. Little or no damage, however, was caused to the canal works. The highest readings on the gauges are noted below :—

RIVER SONE.

LOCALITY.	1888-89—17TH AUGUST 1888.		1887-88—12TH JULY 1887.		HIGHEST KNOWN, 1876-77—7TH JULY 1876.	
	Above weir.	Below weir.	Above weir.	Below weir.	Above weir.	Below weir.
Dehree	340·50	339·50	338·40	337·40	342·10	341·00
Baroon	342·60	340·40	340·13	338·10	343·50	342·70

RIVER GANGES.

LOCALITY.	Date.	Reading.	HIGHEST KNOWN SINCE 1874.	
			Date.	Reading.
Buxar	20th September 1888 ..	119·21	6th September 1875...	200·71
Deegah	19th „ „ ...	168·53	14th August 1879...	169·20
Hajipore, confluence of rivers Ganges and Gunduck.	19th „ „ ...	165·60	August „ ...	166·20

The Dehree canal head sluices were closed for 58½ hours and the Baroon canal head sluices for 136 hours during floods to avoid the influx of water heavily charged with silt.

CALCUTTA AND EASTERN CANALS.

CAPITAL ACCOUNT.

91. The Capital and Revenue Accounts of these canals are given below :—

I.—CAPITAL ACCOUNT.

HEADS OF ACCOUNT.	Outlay during 1888-89.	Outlay to end of 1888-89.
DIRECT CHARGES.	Rs.	Rs.
Old outlay prior to the year 1861-62	.....	24,91,612
I.—Works	40,448	20,35,318
II.—Establishment	10,765	3,85,196
III.—Tools and plant	229	3,45,816
IV.—Profit and loss	.....	847
V.—Suspense accounts	(—) 3,580	10,797
Total ...	47,862	52,68,981
Less receipts on Capital account	.....	41,553
Net total direct charges ...	47,862	52,27,428
INDIRECT CHARGES.		
Leave and pension allowances	1,507	61,057

2—REVENUE ACCOUNT—(ACTUALS).

REVENUE ACCOUNT.

	EXPENDITURE.			RECEIPTS.	
	During 1888-89.	To end of 1888-89.		During 1888-89.	To end of 1888-89.
DIRECT CHARGES.	Rs.	Rs.		Rs.	Rs.
I.—Works, Maintenance and Repairs.					
Old outlay prior to the year 1861-62 ..	...	13,63,615	Old revenue prior to the year 1861-62.	...	80,17,101
Works (extensions and improvements) ...	4,573	9,01,017	Navigation ...	5,69,920	1,18,16,300
Repairs	1,63,656	29,72,469	Miscellaneous	5,224	4,17,028
Establishment, including direction and accounts...	46,981	10,23,917	Total ...	5,75,144	2,02,50,429
Tools and plant ...	29,054	90,759	*Less* refunds of revenue ...	19	19
Total ...	2,44,264	63,51,777			
II.—Revenue Management.					
Navigation establishment	37,684	11,61,263			
Total direct charges ...	2,81,948	75,13,040			
INDIRECT CHARGES.*					
Capitalized abatement of land revenue ...	...	...			
Leave and pension allowances	11,853	1,90,064			
Total direct charges ...	11,853	1,90,064			
Total working expenses...	2,93,801	77,03,104			
Profit	2,81,324	1,25,47,306			
Total ...	5,75,125	2,02,50,410	*Net* total receipts ...	5,75,125	2,02,50,410

* These are now shown under the suggestion of the Government of India

92. The following statement shows the financial results of these canals for the last ten years. The figures are both for direct and indirect charges:— FINANCIAL RESULTS.

YEAR.	CAPITAL OUTLAY		RECEIPTS AND WORKING EXPENSES.			Percentage of net revenue to capital outlay to end of year.
	During the year.	To end of the year.	Gross revenue.	Charges (direct and indirect).	Net revenue.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1879-80	2,60,998	35,89,495	3,44,565	1,93,049	1,51,616	4·2
1880-81	6,26,886	42,16,381	4,14,145	2,19,323	1,94,822	4·6
1881-82	5,58,268	47,74,649	4,82,467	3,32,221	1,50,246	3·1
1882-83	3,21,351	50,96,000	5,64,194	3,26,897	2,37,297	4·6
1883-84	1,35,534	52,51,534	5,64,101	2,32,031	3,32,070	6·3
1884-85	9,013	52,60,547	(a) 5,69,726	2,91,214	2,78,512	5·2
1885-86	(—)42,566	52,17,981	(b) 4,79,484	1,96,209	2,83,275	5·4
1886-87	5,293	52,23,274	4,83,654	1,72,264	2,91,390	5·5
1887-88	15,842	52,39,116	5,79,034	3,24,056	2,55,278	6·7
1888-89	49,369	52,88,485	5,75,125	2,93,801	2,81,324	5·3

(a) Is Rs. 35,185 larger than it should be by reason of error of amount.
(b) Is Rs. 35,185 smaller than ditto ditto ditto.

The expenditure on Capital account was larger than it has been of recent years, and amounted to Rs. 49,369. Of this sum, Rs. 27,745 was spent on two wrought-iron caissons, to be used for closing the large locks at Dhappa and Chitpore, when these are under repair, and Rs. 12,258 on buildings, of which the chief are the new Dhappa toll-house, an inspection bungalow at Busseerhaut on the Eastern canals boat route, and a godown at Bhangore for the storage of goods recovered from wrecks.

The gross revenue, though less than that of 1887-88, is greater than that of any other preceding year since 1879-80, while the net revenue, though better than that of the first six years of the decade, is worse than that of either of the

three immediately preceding years. The receipts and working expenses for the last ten years are shown in greater detail in the following statement:—

	1888-89.	1887-88.	1886-87.	1885-86.	1884-85.	1883-84.	1882-83.	1881-82.	1880-81.	1879-80.
RECEIPTS.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Navigation	5,69,592	5,74,766	4,77,109	5,01,141	5,20,495	5,51,713	5,55,103	4,72,086	4,02,427	3,31,950
Miscellaneous	5,552	5,168	6,455	(—)21,657	49,231	12,388	9,001	9,781	11,718	13,500
Total	5,75,144	5,79,934	4,83,564	4,79,484	5,69,726	5,64,101	5,64,104	4,81,867	4,14,145	3,44,565
Less refunds of revenue.	19	...	...	...	...	...	...	...	...	...
Net total receipts ...	5,75,125	5,79,934	4,83,564	4,79,484	5,69,726	5,64,101	5,64,104	4,81,867	4,14,145	3,44,565
WORKING EXPENSES.										
Direct charges.										
Works (extensions and improvements).	4,573	1,478	5,092	32,277	78,575	27,897	...	...	...	...
Maintenance and repairs ...	1,63,656	1,64,527	1,02,480	67,942	90,262	1,02,316	2,27,078	2,63,218	1,55,941	1,26,988
Establishment	84,865	88,103	66,989	67,584	93,013	81,478	92,087	64,030	50,660	61,790
Tools and plant	29,054	18,139	8,347	18,944	7,342	8,933	...	...	...	...
Total direct charges ...	2,81,948	2,12,312	1,82,888	1,86,747	2,78,192	2,20,624	3,20,265	3,27,254	2,15,601	1,88,778
*Indirect charges.**										
Capitalization of abatement of land revenue.	...	...	...	...	...	...	...	...	...	...
Leave and pension allowances.	11,853	12,344	9,376	9,462	13,022	11,407	6,632	4,967	3,722	4,171
Total indirect charges ...	11,853	12,344	9,376	9,462	13,022	11,407	6,632	4,967	3,722	4,171
Total working expenses ...	2,93,801	2,24,656	1,92,264	1,96,209	2,91,214	2,32,031	3,26,897	3,32,221	2,19,323	1,92,949
Net revenue ...	2,81,324	3,55,278	2,91,300	2,83,275	2,78,512	3,32,070	2,37,207	1,50,246	1,94,822	1,51,616

* These are now shown under the suggestion of the Government of India.

COLLECTIONS.

93. As compared with 1887-88, the navigation receipts show a falling off of Rs. 5,174, or 0·9 per cent., corresponding to a decline of 622, or 0·4 per cent., in the number of boats which paid toll. Miscellaneous revenue has increased by Rs. 384. The fluctuations in receipts from each source are shown below:—

CANALS.	Number of boats and rafts.	COLLECTIONS BY COLLECTOR AND SUPERVISOR.						COLLECTIONS BY EXECUTIVE ENGINEER.	GRAND TOTAL, GROSS REVENUE.
		Tolls from boats and rafts.	Demurrage.	Ferry tolls.	Tolls from steamers and flats.	Rents of buildings, lands, and other miscellaneous receipts.	Total.	Rents of buildings, lands, and other miscellaneous receipts.	
	No.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Calcutta and Eastern	90,090	4,22,860	4,748	3,500	4,670	3,224	4,30,071	1,780	5,75,144
Tolly's Nullah ...	78,210	1,32,202	912	807	...	222	1,34,293		
Total, 1888-89 ...	168,300	5,55,161	5,660	4,427	4,670	3,446	5,73,364	1,780	5,75,144
Total, 1887-88 ...	169,031	5,02,405	5,022	2,894	4,445	3,522	5,78,288	1,646	5,79,934

BOATS.

94. On the Circular and Eastern Canals, which is the chief outlet to the Eastern boat-route, the number of boats rose from 88,959 to 90,068:—

		NUMBER AND CLASS OF BOATS.					
		Up to 100 maunds.	Between 100 & 1,000 maunds.	Between 1,000 and 2,500 maunds.	Between 2,500 and 5,000 maunds.	Over 5,000 maunds.	Total.
Circular and Eastern Canals	1888-89 ...	36,376	31,020	20,492	2,100	72	90,068
	1887-88 ...	34,968	30,806	21,227	1,809	89	88,959

The tolls collected on this route also show an increase of Rs. 1,874. On Tolly's Nullah, however, the number of boats is less by 1,819, and the takings by Rs. 8,193:—

		NUMBER AND CLASS OF BOATS.					
		Up to 100 maunds.	Between 100 and 200 maunds.	Between 1,000 and 2,500 maunds.	Between 2,500 and 5,000 maunds.	Over 5,000 maunds.	Total.
Tolly's Nullah ...	1888-89 ...	18,766	24,104	6,067	56	...	48,993
	1887-88 ...	18,244	24,793	7,202	59	...	50,298

The shallowness of the channel is the chief cause of the falling off.

Besides the boats enumerated in these tables, the boats which are unclassified, being chiefly small boats of 100 maunds, paying toll at Russa on Tolly's

Nullah, numbered 29,127 against 29,641 in the previous year. Rafts show a decrease of 12 in number, and steamers and flats an increase of 45.

The traffic in rice was unfavourably affected by a disposition on the part of mahajuns to lock up their stocks in view of a rise in price. On the other hand, the jute trade was brisk.

TRAFFIC.

95. The following statement compares the traffic on the Calcutta canals and Tolly's Nullah during the year 1888-89 with the preceding year :—

		Number of boats.	Tonnage of boats by canal measurement.	Weight of cargo carried.	Value of cargo carried.	Tollage, including demurrage.	Percentage of toll on value of cargo.
		No.	Tons.	Tons.	Rs.	Rs.	
1888-89	Calcutta canals ...	90,068	2,005,703	701,543	5,48,07,758	4,32,288	
	Tolly's Nullah ...	78,120	796,275	259,456	1,82,07,771	1,33,203	
	Total ...	168,188	2,801,078	961,999	7,10,75,529	5,65,491	0·79
1887-88	Calcutta canal ...	88,959	2,065,967	696,752	4,78,97,746	4,30,417	
	Tolly's Nullah ...	79,939	914,938	259,775	1,56,04,747	1,41,455	
	Total ...	168,898	2,980,905	956,527	6,35,02,493	5,71,872	0·89

There is decrease in all heads except in value of cargo, which shows an increase of Rs. 75,13,036, attributable to the higher prices of goods.

MISSING TICKETS.

96. In the number of missing tickets there is a very satisfactory decrease of 348, or about 51 per cent.

RENTS OF SURPLUS LANDS.

97. The disposal of the revenue derived from the rents of surplus lands on these canals has recently been the subject of some discussion, and may be briefly referred to here. The income from this source aggregates about Rs 38,000, of which Rs. 28,000 has always been collected by the Collector of the district, while the collection of the remaining Rs. 10,000, which was formerly in the hands of the canal officers, was, in consequence of the recommendations of the Committee appointed in 1886, also transferred to the Collector. It has been decided by the Government of India, in the Finance Department, that, as the whole of this income is now collected by the Collector, it should be credited under the head of "Land Revenue," and, as a consequence of this decision, the further question has arisen of the propriety of making a reduction in the amount shown as capital expenditure in the accounts. It is true that the importance of this question is lessened by the fact that no interest is paid on capital in the case of these canals; but the financial position of any work cannot be said to be accurately stated so long as capital is debited with expenditure, the profits of which do not appear in the revenue account; and, for this reason, the Officiating Chief Engineer has recorded his opinion that the reduction in the capital account should be made; and further, as the value of the lands has been enhanced by the successful development of the canals, that the sum so credited to the capital account should be the present value of the lands, and not their original cost.

REVENUE ESTABLISHMENT.

98. The statement below compares the entire cost of the Revenue establishment under the Collector and Supervisor with the gross collections made by him for the last four years :—

	Gross collections made by Collector and Supervisor.	Cost of entire Revenue establishment.	Percentage.
	Rs.	Rs.	
1888-89	5,73,364	37,684	6·57
1887-88	5,78,288	38,920	6·73
1886-87	4,81,048	42,714	8·84
1885-86	5,13,839	44,751	8·70

Although the collections of the year were less than the amount of the previous year the Supervisor's commission was greater on account of the unusually heavy commission for March 1888 being paid in April. This was more than counterbalanced by the reduction under other heads on account of the transfer of an Inspector to the Nuddea Rivers and the pensioning of the head clerk, the places in both cases being taken by men on lower salaries.

Although there has been a small reduction in the number of boats entering the canals, yet the result of a further reduction in the cost of establishments is again a small decrease in the cost per boat measured from 3·68 to 3·58 annas.

WRECKS. 99. The total number of boats wrecked owing to various causes during the year was 106, against 128 of the previous year.

MAINTENANCE CHARGES. 100. From the statement already given in paragraph 86, it will be seen that the working expenses, including all charges, direct and indirect, have increased from Rs. 2,24,656 to Rs. 2,93,801, and that this increase has taken place mainly in the cost of maintenance and repairs, which has risen from Rs. 1,04,527 to Rs. 1,63,656. Under "Channels and Banks," on which the increase in the cost of maintenance is Rs. 39,158, is included the greater portion of the outlay on the Bhyrub and Assassooni khalls, two links in the chain of rivers and tidal creeks forming the Eastern boat route, both of which were laid dry and the work carried out at the end of 1887-88, the silt being cleared by hand. The clearance of the Tetooa khall and some extensive piling work near Hastings on Tolly's Nullah were also charged under this sub-head. Under "Towpaths," on which the increase is Rs. 5,616, much of the repairs carried out in 1887-88 was paid for in 1888-89, while on "Rustic Bridges," on which only ordinary charges had been incurred for some years, the renewals now found necessary caused an increase of Rs. 8,671.

DREDGING. 101. On "Dredging" the expenditure has increased from Rs. 4,254 to Rs. 10,979. 979,700 cubic feet of silt were dredged by two dredgers for Rs. 8,698; an average rate of Rs. 8-14 per thousand cubic feet. The quantity dredged in the previous year was 350,700 cubic feet, and the rate Rs. 9-8-4 per thousand.

ORISSA COAST CANAL.

CAPITAL ACCOUNT. 102. The Capital and Revenue accounts of this canal are given below:—

1.—CAPITAL ACCOUNT.

HEADS OF ACCOUNT.	Outlay during 1888-89.	Outlay to end of 1888-89
	Rs.	Rs.
DIRECT CHARGES.		
I.—Works	70,302	32,19,103
II.—Establishment	24,963	7,26,121
III.—Tools and plant	3,464	1,74,816
IV.—Suspense accounts	(—) 911	37,311
Total	97,818	41,57,351
V.—*Less* receipts on Capital account ...	7	3,278
Net total direct charges	97,811	41,54,073
INDIRECT CHARGES.		
Capitalized abatement of land revenue	.....	784
Leave and pension allowances ...	3,495	1,01,572
Total indirect charges ...	3,495	1,02,356

A revised estimate for this canal was sanctioned by the Secretary of State in August 1889, and amounted to Rs. 43,46,873 (direct charges), or Rs. 1,92,800 over the total expenditure to end of the year 1888-89. The canal has been open throughout its entire length of 97½ miles during the year. The works in progress under "Original works" comprised the finishing up of the canal banks, locks, and ferry ghâts, and the completion of the Panchpara supply pipe.

The canal is practically complete, though certain details, such as the provision of accommodation for the tolls establishment, ferry ghâts, &c., remain to be carried out. Some 2,900,000 cubic feet too of earth has still to be taken out of the bed, but as it offers no serious obstacle to navigation, and to dredge it would be expensive, its removal has been deferred.

The expenditure has been entirely from Provincial Funds with the exception of Rs. 8,66,000 contributed from Imperial Protective Funds. There is no interest account.

2—REVENUE ACCOUNT (ACTUALS).

REVENUE ACCOUNT.

EXPENDITURE.			RECEIPTS.		
	During 1888-89.	To end of 1888-89.		During 1888-89.	To end of 1888-89.
DIRECT CHARGES.	Rs.	Rs.		Rs.	Rs.
I.—Maintenance and Repairs.					
Maintenance and repair	42,606	1,63,007	Navigation ...	65,047	1,60,088
Establishment, including direction and accounts	11,377	41,112	Miscellaneous ...	1,381	3,400
Tools and plant	14,462	27,428	Total ...	66,428	1,63,488
Total	68,445	2,31,547	*Less*—Refunds of revenue	254	271
II.—Revenue Management.					
Navigation Establishment	6,123	13,474	Net total receipts	66,174	1,63,217
Total direct charges ..	74,568	2,45,021	Deficit ...	10,844	89,446
INDIRECT CHARGES.*					
Capitalized abatement of land revenue ...					
Leave and pension allowances ...	2,450	7,642			
Total indirect charges...	2,450	7,642			
Total working expenses	77,018	2,52,663	Total ...	77,018	2,52,663

* These are now shown under the suggestion of the Government of India

103. The receipts and working expenses of the Orissa Coast canal since the year 1885-86, when the Revenue account was first opened, are shown in the following statement:— FINANCIAL RESULTS.

	1888-89.	1887-88.	1886-87	1885-86
RECEIPTS.	Rs.	Rs.	Rs.	Rs.
Water-rates	...	...	(—)1	1
Navigation	65,010	52,828	28,587	13,663
Miscellaneous	1,418	1,026	902	54
Total	66,428	53,854	29,488	13,718
Less refunds of revenue ...	254	17		
Net total receipts ...	66,174	53,837	29,488	13,718
WORKING EXPENSES.				
DIRECT CHARGES.				
I.—Maintenance and Repairs.				
Repairs	42,606	53,277	43,969	23,155
Establishment, including direction and accounts	11,377	14,289	10,120	5,326
Tools and plant	14,462	8,743	3,432	791
Total ...	68,445	76,309	57,521	29,272
II.—Revenue Management.				
Navigation establishment ...	6,123	4,559	2,183	609
Total direct charges ...	74,568	80,868	59,704	29,881
INDIRECT CHARGES.				
Capitalized abatement of land revenue	..	..	..	
Leave and pension allowances ...	2,450	2,639	1,722	831
Total indirect charges ...	2,450	2,639	1,722	831
Total working expenses ...	77,018	83,507	61,426	30,712
Net revenue ...	(—)10,844	(—)29,670	(—)31,938	(—)16,994

IRRIGATION.

108. These canals were, as last year stated, primarily intended for the supply of water for the manufacture of indigo. The water available is to a certain extent used for irrigation, but the areas returned as irrigated are not reliable, there being no special establishment employed to assess water-rates, which are collected by the gentlemen who have guaranteed a revenue of Rs. 21,850. There are no distributaries and but few village channels, and the guarantors are understood to have considerable difficulty in assessing lands watered direct from the canals, which are in fact the old nullahs of the country.

There was a complete failure of the *Hutia* rain, and in consequence a demand for water for rice irrigation, and also to a limited extent for rabi irrigation, as seeds could not be sown in many places for want of moisture without artificial irrigation.

The areas irrigated for all years since 1881-82 are shown below:—

	Acres.
1881-82	666
1882-83	1,741
1883-84	21,122
1884-85	7,223
1885-86	4,565
1886-87	2,146
1887-88	4,218
1888-89	7,213

COLLECTIONS.

109. The amount of the guarantee is recovered by the Collector of Sarun. The assessments, remissions, and recoveries for the canals are shown below:—

	Rs.
Balance unrecovered on the 1st April 1888	24,321
Assessment of the year's guarantee	21,850
Miscellaneous revenue collected by Executive Engineer ...	399
Total ...	46,570
Remitted	Nil
Net demand ...	46,570
Recovered on account of guarantee by Collector	...
Guarantee paid by canal managers	19,334
Fisheries	4
Miscellaneous	20
Realized by guarantors for water-rates	83
Realized by Collector for water-rate under Certificate Act ...	924
	20,415
Recovered by Executive Engineer	399
Total collections ...	20,814
Balance on 1st April 1889	25,756

The outstanding balance has increased slightly during the year.

PLANTATIONS.

110. The plantations are of but trifling extent. The number of trees in existence is shown in the table below:—

	1888-89.	1887-88.
	Rs.	Rs.
Trees over 12 feet in height	3,988	1,710
Saplings between 4 and 12 fee	1,751	694
Seedlings under 4 feet	3,693	1,915
Total ...	9,432	4,319

The expenditure on plantations up to the end of the year has amounted to Rs. 1,485.

FLOODS.

111. There were no floods during the year of any importance. The river Gunduck did not even reach the embankment; the highest flood was on 20th July 1888 when the gauge registered 240·50, which was 2·10 feet below the highest flood on record, viz., 242·60 in August 1883.

112. The guarantee expires on the 1st of April 1890. Preparations have been made to build a regulator at Hatpokur, but it will be necessary to determine what measures will be necessary to prevent the Rupan Chap *sota* forcing a passage into the river Gunduck at Chattahi before expending a considerable sum of money on a regulator below that place. GENERAL.

NUDDEA RIVERS.

113. The channels comprising the Nuddea rivers system are situated in the districts of Moorshedabad and Nuddea. Their approximate lengths are as follows:—

Bhagiruthee ...	...	... 167 miles to Nuddea.
Bhyrub-Jellinghee	...	... 41 ditto.
Matabhanga ...	...	... 138 miles to outfall on the Hooghly.
Hooghly ...	...	... 31 miles from Nuddea to Chogda.
		477 miles.

The management of the revenue has passed from the hands of the Board of Revenue to the Public Works Department. A revenue account also has been opened for these rivers. Both changes were effected at the commencement of the year under report.

The Revenue Account is given below:— REVENUE ACCOUNT.

	EXPENDITURE			RECEIPTS	
	During 1888-89.	To end of 1888-89.		During 1888-89.	To end of 1888-89.
DIRECT CHARGES	Rs.	Rs.		Rs.	Rs.
I.—Works, Maintenance and Repairs.			Old revenue prior to the year 1870-71 ...	...	38,79,660
Old outlay prior to the year 1870-71 ...	...	23,95,857	Navigation ...	1,91,791	39,25,243
Works (extensions and improvements) ...	...	29,124	Miscellaneous ...	97	17,305
Repairs .	88,933	9,00,167	Total ...	1,91,888	78,22,208
Establishment, including direction and accounts ...	20 389	3,51,049	*Less*—Refunds of revenue	...	...
Tools and plant ...	2,380	1,66,515			
Suspense accounts .	(—)14	4,891	Net total receipts ...	1,91,888	78,22,208
Total ...	1,11,688	38,47,603			
II.—Revenue Management.					
Navigation Establishment	23,006	3,96,603			
Total direct charges ...	1,34,694	42,44,206			
INDIRECT CHARGES *					
Capitalized abatement of land revenue ...	...	...			
Leave and pension allowances ...	6,075	2 21,813			
Total indirect charges	6,075	2,21,813			
Total working expenses	1,40,769	44,66,019			
Profit	51,119	33,56,189			
Total ...	1,91,888	78,22,208			

* These are now shown under the suggestion of the Government of India.

MADHUBAN CANAL.

irrigated was 5,000 acres, including 3,000 acres of opium. The expenditure incurred on maintenance was Rs. 4,194 against Rs. 9,821 spent in the year previous, which, however, included Rs. 4,729 for special repairs against Rs. 582 required for this purpose in 1888-89.

GENERAL REMARKS.

NET REVENUE

121. The working of the canals classed as Major irrigation works in Bengal resulted in a net deficit of Rs. 23,721, as below:—

	Rs.
Gross direct receipts	13,94,369
Ditto charges	14,18,090
Deficit ...	23,721

The budget estimate of net revenue was (—) Rs. 42,000, and the revised estimate, which provided for an additional Rs. 26,000 in working expenses, was (—) Rs. 68,000.

In 1887-88 the revenue on the Sone canals had been seriously affected by the local agitation against the canal administration, and consequently the net result of the year on Major works had been a loss of Rs. 4,00,356. The budget estimate for 1888-89 was framed with the expectation that this adverse influence would gradually be brought to rest; and though many indications in the course of the year made it clear that this expectation was being fulfilled, and that the benefits of irrigation were being freely admitted by the users of water, still the state of the collections at the time the revised estimate was issued was not such as to justify any substantial advance on the figures of the original estimate. Ultimately the receipts exceeded the estimate by Rs. 36,369, while the working expenses were less by Rs. 7,910.

	Budget estimate.	Revised estimate.	Actuals.
	Rs.	Rs.	Rs.
Direct receipts	13,58,000	13,58,000	13,94,369
Do. charges	14,00,000	14,26,000	14,18,090
Net revenue ...	—42,000	—68,000	—23,721

EARNINGS.

122. The net income from Major works calculated on the earnings of the year is shown below—

	1888-89. Rs.
Orissa canals	(—)76,282
Midnapore canal	82,123
Hidgellee Tidal canal	(—)22,943
Sone canals	83,080
	71,978

The result shown in this statement is calculated on the actual navigation and miscellaneous receipts, as well as the whole amount of the water-rates assessable on crops raised by canal water supplied during the year. In the Revenue Reports of previous years, earnings have been calculated on the demand on which it was possible to make recoveries. In the present report the whole of the liability incurred, whether recoverable within the year or not, is taken as revenue earned, less actual refunds. This is in accordance with the instructions

of the Government of India, and is the same as the method followed in the Upper Provinces. On the expenditure side actual charges, direct and indirect, have been taken.

123. The approximate value of crops irrigated by Major irrigation works during the last two years is shown below:— VALUE OF CROPS.

CANALS.	1887-88.		1888-89.	
	Area irrigated.	Value of crops.	Area irrigated.	Value of crops.
	Acres.	Rs.	Acres.	Rs.
Orissa canals	109,506	19,06,362	159,292	51,64,168
Midnapore canal	65,864	13,17,280	69,777	17,44,425
Sone canals	315,380	76,89,808*	355,909	1,10,07,607
Total ...	490,750	1,09,13,450	584,978	1,79,16,200

* This is the correct figure.

This statement is compiled from returns submitted for the Orissa and Midnapore canals by the Deputy Revenue Superintendents, and for the Sone canals by the Superintending Engineer. The percentage of increase shown in the area irrigated is 18, while that of the value of crops raised by canal water is 64; a result brought about by a general rise in prices, as well as a general improvement in the outturn from irrigated lands. Several glaring inaccuracies in the returns of valuation for 1887-88, some of which were noticed in the Chief Engineer's note of that year, have been corrected in the comparative statement given above. For instance, Rs. 12 per acre, given by the Deputy Revenue Superintendent as the value of the Orissa rice crop of 1887-88, is now admitted to have been much too low an estimate, and is raised to Rs. 18 per acre, which compares to Rs. 32 per acre, the valuation of the same crop in 1888-89. Similar errors noticed in the returns received from the Sone canals have also been corrected. The following abstract, compiled from the corrected figures, shows that on these canals there has been an increase in the value per acre of food-grains and sugarcane and a decrease in the value of opium:—

CROPS.	RATES PER ACRE.					
	1887-88.			1888-89.		
	Eastern Sone.	Arrah.	Buxar.	Eastern Sone.	Arrah.	Buxar.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Sugarcane	96·6	50	100	105·4	100	100
Wheat	28	17·5	28	28	24	28
Barley	22·5	12·5	22	22	15	22
Rice	24	19	22	30	29·8	28
Miscellaneous cereals	12·5	12	14	24	18·4	13·7
Opium	75	40	48	49	39·	48

124. The state of the canal plantations on Major works is shown in the following statement:— PLANTATIONS.

CANALS.	1887-88.			1888-89.		
	Trees 12 feet high and above.	Saplings between 4 and 12 feet.	Seedlings.	Trees 12 feet high and above.	Saplings between 4 and 12 feet.	Seedlings.
	No.	No.	No.	No.	No.	No.
Orissa Canals ...	46,329	23,039	59,459	50,318	21,571	49,932
Midnapore Canal ...	6,959	4,640	4,788	8,128	5,517	6,315
Hidgellee Tidal Canal	1,172	3,875	3,121	1,632	4,299	2,594
Sone Canals ...	105,476	58,373	132,011	120,787	60,719	137,854
Total ...	159,936	89,927	199,379	180,865	92,106	196,695

NAVIGATION RECEIPTS.

125. The toll collections on each canal system, with the percentage of cost of collection on receipts, and the cost of measuring each boat, are given below:—

	Toll collections.		Percentage of charges for collection to amount collected.		Cost of measuring each boat.	
	1887-88.	1888-89.	1887-88.	1888-89.	1887-88.	1888-89.
Works partly for Irrigation and partly for Navigation.	Rs.	Rs.	Rs.	Rs.	Annas.	Annas.
Orissa Canals	66,628	69,880	13·7	13·6	5·8	7·1
Midnapore Canal	1,26,574	1,46,760	6·1	5·1	2·5	2·2
Sone Canals	50,984	52,162	28·0	25·1	28 2	25·8
Total ...	2,44,186	2,68,752	12·7	11·2	6·0	5·8
Works for Navigation only.						
Hidgellee Tidal Canal ...	40,406	53,910	7·4	5 9	3·5	3·1
Calcutta and Eastern Canals ...	5,71,872	5,65.491	6·8	6·7	3·7	3 5
Orissa Coast Canal	52,828	65,010	8·6	9·4	6·0	7·2
Nuddea Rivers	1,98,318	1,91,749	11·1	12·0	5 4	6·0
Total ...	8,63,424	8,76,160	7·9	8·0	4·2	4·3
GRAND TOTAL ...	11,07,610	11,44,912	.....	.....	.....	.....

The revival of trade on the Midnapore canal, which had set in in the previous year, has continued to gain strength. The two river systems alone show decreased incomes, and it is probable that the introduction of lower rates on the railways which compete with these routes was beginning to make itself felt in 1888-89, since it is found to have caused a very sensible decrease on the boat traffic in 1889-90.

126. It has not been the custom, at least of late years, to bring to notice in the Revenue Report the names of members of the establishment who may have specially distinguished themselves by their conduct of their duties; and, finding such the case, I have hitherto refrained from altering the custom, although I have by no means failed to appreciate the good work of those who have been serving under me. Where officers, as a body, are so earnest, conscientious, self-sacrificing, and hard-working, as those with whom I have been connected during my stay in the province, and where the men who do not give satisfaction are so few and far between, it must always be felt a somewhat invidious duty to select officers for special mention, and the custom of omitting all individual notice has, I confess, afforded me a sense of relief. Now, however, that I am about to sever my connection with the province, I feel that I ought not to lose this opportunity, when submitting the last Revenue Report of the province which will issue under my signature, of showing my appreciation of the more special services which some members of the establishment have rendered, and of thanking all, with but few exceptions, for their excellent work, and all without exception for their good-will, kindliness and thorough loyalty towards one, who, however anxious he might be not to appear in that character, could scarcely fail to be considered as somewhat of an interloper.

The officers in charge of Circles during my tenure of office have been:—

Orissa Circle—Major McArthur, Mr. Rhind.

South-Western Circle—Messrs. Wickes and Vertannes (now retired) and Major McArthur.

Sone Circle—Mr. Odling and Major McArthur, the latter for a short time only.

One and all have conducted their duties to my entire satisfaction; but if any one is to be specially noticed, I would mention Mr. Odling for the exceptionally able manner in which he has managed his Circle at a most trying period in the existence of the Sone Canals.

Amongst officers who have been in charge of divisions during the same period, whilst nearly all have conducted their duties in an excellent manner, I would specially mention Messrs. Faulkner, Horn, Inglis, Livesay, Scotland, Shawe, Stephen, Frost, Carter; and amongst sub-divisional officers, Messrs. A. S. Thomson, Lees, Coy, Frost, Carter, C. A. White, Arnott, Silk, Barlow, Clowes, Stawell, and Searight.

During the year under review and its predecessor, the strain on the canal officers, divisional and sub-divisional, has been specially severe, and excellent service has been rendered by all in a very trying season More especially has this been the case on the Sone Canals, where, owing to the system in force, the work thrown on the engineering staff is heavier than it is elsewhere, and the Superintending Engineer brings prominently to notice the excellent service rendered by the divisional and sub-divisional canal officers in an exceptionally trying season.

I travelled over the greater part of the main canals in 1888, just when the severe demand was commencing to subside, so that I have personal konwledge of the difficulties experienced. The Divisional Engineers, Mr. Horn, Buxar; Mr. Inglis, Arrah; and Mr. Frost, Eastern Sone, are distinctly entitled to praise for the successful exertions they made to extend the benefits of irrigation as widely as possible, and Mr. Stephen, the Executive Engineer at Dehree, is equally deserving of credit for the promptitude with which he conducted the difficult operation of closing the vents in the under-sluices at Dehree. The Superintending Engineer's commendation of the sub-divisional officers was well earned.

Lastly, I thank heartily for their good work the officers who have performed the duties of Under-Secretary—Major McArthur and Messrs. Buckley and Shawe. I have invariably found them most helpful and loyal, and of the greatest assistance in every portion of the duties of my office.

127. The date for the submission of Revenue Reports to the office of the Chief Engineer is the 15th September. The dates when the different reports were received are shown below:—

		In 1888.	In 1889.
Orissa Circle ...	Commissioner's report	... 26th October...	3rd October.
	Superintending Engineer's report	3rd ditto ...	9th ditto.
South-Western Circle	Commissioner's report	... 24th September	16th September.
	Superintending Engineer's report	24th ditto ...	28th ditto.
Sone Circle	Commissioner's report	... 6th October ..	28th September.
	Superintending Engineer's report	17th September	14th ditto.

The reports were punctual, with the exception of those of the Commissioner of the Orissa Division and the Superintending Engineer, Orissa Circle. The Finance and Administrative Accounts of the year 1888-89 due on the 1st were received from the Examiner on the 22nd August.

C. W. I. HARRISON, LT.-COL., R.E.,

The 6th January 1890. *Offg. Chief Engineer.*

IA.

PUBLIC WORKS DEPARTMENT.

STATEMENT OF CANALS IN THE PROVINCE OF BENGAL.

	Orissa Canals.			Midnapore Canal.	Hidgellee Tidal Canal.	Sone Canals.			Sarun Canals.	Calcutta and Eastern Canals.	Orissa Coast Canal.
	Mahanuddy Series.	Brahmini-Byturni Series.	Total.			Eastern Main Canal Series.	Western Main Canal Series.	Total.			
Source of supply of water ...	River Mahanuddy.	Rivers Brahmini and Byturni.		River Cossye.	Rivers Rupnarain and Russulpore.	River Sone.			River Gunduck.	River Hooghly and Soonderbund Creeks.	Rivers Russulpore, Subunreka, Panchpara, Burrabolong, and Metai.
Minimum discharge of river—cubic feet per second ... ... Kharif ...	Not observed	1,205 82	1,25·802	700	Tidal canal for navigation only.	5,257, October 22nd, 1883.			5,082	Tidal canal for navigation only.	Tidal canal for navigation only.
Rabi ...	1,558	725·56	2,283·56	200		1,868, February 16th, 1884.					
Hot-weather	417	172·33	589·33	100		447, May 27th, 1879.					
Maximum discharge of canal—cubic feet per second	3,902	2,156·00	6,058·00	1,400		1,613	4,342	5,955	1,084		
Average annual rainfall ... Inches	48·36	51·40	49·88	62·13		41·68	41·06	41·25	41·36		
Gross area commanded ... Acres	373,772	137,500	511,272	180,000		406,155	1,322,354	1,728,509	64,000		
Culturable ditto ... ,,	439,951	137,500	577,451	173,160		317,307	1,033,089	1,350,396	50,000		
Area irrigable by complete project ... ... ,,	439,951	137,500	577,451	125,000		309,040	707,360	1,016,400	50,000		
Area irrigable at present ... ,,	208,419	42,500	250,919	125,000		309,040	707,360	1,016,400	30,000		
Sanctioned estimate—											
Direct charges ... Rs.	3,13,96,220		3,13,96,220	83,16,768	17,72,699	2,78,88,697		2,78,88,697	6,63,521	.....	24,45,742
Indirect do. ... ,,	9,19,625		9,19,625	1,84,215	44,807	13,99,607		13,99,607	33,111	.....	1,56,555
Interest during construction ... ... ,,	1,21,54,723		1,21,54,723	38,60,294	2,17,460	29,67,227		29,67,227	.....	.....	.....
Total estimate ... ,,	4,44,70,568		4,44,70,568	1,23,61,277	20,34,966	3,22,55,531		3,22,55,531	6,96,632	.....(a)	26,02,297

Expenditure to end of 1888-89—											
Direct charges ...	Rs.	2,35,37,322	2,35,37,322	82,66,010	17,95,489	2,52,84,682	2,52,84,682	6,69,230	52,27,428	41,54,073
Indirect do ...	,,	5,31,481	5,31,481	1,83,711	44,807	8,98,559	8,98,559	27,183	61,057	1,02,356
Interest during construction	,,	1,37,83,108	1,37,83,108	54,17,730	2,17,460	1,35,32,306	1,35,32,306	.....	.....	.....
Total expenditure ...	,,	3,78,51,911	3,78,51,911	1,38,67,451	20,57,756	3,97,15,547	3,97,15,547	6,96,413	52,88,485	42,56,429(*b*)
Works as now sanctioned—										
Main canals, irrigation ...	Miles	138¾	31½	170¼	53(*c*)	29(*c*)	86¼	132¼	218½	6½	27	99(*c*)
Branch do., do ...	,,	107¾	6½	114¼	19	Nil	Nil	148¾	148¾	12½	Nil	Nil
Distributaries ...	,,	1,763	384	2,147	304·69	Nil	358	827½	1,185½	.....	Nil	Nil
Of above—												
Navigable channels ...	Miles	199½	38	237½	72	29	86¼	132¼	218½	.....	27	99
Works completed at end of 1888-89—												
Main canals, irrigation ...	Miles	114	31½	145½	53	29	86¼	132¼	218½	6½	27	97½
Branch do., do ...	,,	100	6½	106½	19	Nil	Nil	148¾	148¾	12½	Nil	Nil
Distributaries ...	,,	713	47½	760½	283·19	Nil	358	810½	1,168½	.....	Nil	Nil
Of above—												
Navigable channels ...	Miles	139	38	177	72	29	86¼	132¼	218½	.....	27	97½

(*a*) There is no general sanctioned estimate for this project.
(*b*) Includes Rs [illegible] expended from famine relief funds.
(*c*) Includes length of river crossings.

IB.

PUBLIC WORKS DEPARTMENT, BENGAL.

CAPITAL ACCO S OF IRRIGATION WORKS IN BENGAL FOR AND TO END OF 1888-89

		Direct Charges—net expenditure.						Indirect charges, exclusive of interest.	Total capital, excluding interest.	Simple interest.
		Works.	Establishment.	Tools and plant.	Suspense account.	Loss by exchange.	Total.			
Major Irrigation Works.		Rs.	Rs.	Rs.	Rs	Rs.	Rs.	Rs.	Rs.	Rs.
Orissa project ...	To end of previous year	1,63,78,368	41,83,995	19,58,232	1,25,218	2,68,070	2,29,13,883	5,16,202	2,34,30,085	1,28 54.084
	During 1888-89 ..	4,80,714	1,06,375	15,043	21,307	.....	6,23,439	15,279	6,38.718	9,29,024
Midnapore canal...	To end of previous year	53,30,800	19,15,054	8,82.328	40,363	94,800	82,63,345	1,83,658	84,47.003	50.87,143
	During 1888-89 ...	—40	1	—429	3,133	...	2,665	53	2.718	3,30,587
Tidal canal ...	To end of previous year	12,66,239	4.49,790	56,670	.....	22,790	17,95,489	44,807	18,40,296	12,58.963
	During 1888-89 ...	.....	.....	.....	.....	.....	.....	.....	.....	71.820
Sone project ...	To end of previous year	1,79,22,464	50,28,525	19.57,439	1,75,571	52,240	2,51,36,239	8,95.662	2,60,31,901	1,25,23,888
	During 1888-89 ..	93,206	20,691	21,776	12,770	...	1,48,443	2,897	1,51,340	10,08,418
Total ...	To end of previous year	4,08,97,871	1,15,77,364	48,54,669	3,41,152	4,37,900	5,81,08,956	16,40,329	5,97,49,285	3,17.24,078
	During 1888-89 ...	5,73,880	1,27,067	36,390	37,210	.....	7,74,547	18,229	7,92,776	23,39,849
Minor Works and Navigation.										
Tirhoot project ...	To end of previous year	90,685	4.33,943	6.797	.....	.....	5,31,425	74,650	6,06,075	.....
	During 1888-89	.....	.. ...	.. ...	.....	.....	.....	.....	.....	... ..
Damudar project...	To end of previous year	52,677	94,864	4,800	.....	.....	1,52,341	16,239	1,68,580	.....
	During 1888-89 ...	—1,200	.....	....	.....	.....	—1,200	.....	—1,200	.....
Sarun project ...	To end of previous year	4,79,448	1,64,170	25,612	.....	.....	6,69,230	27,183	6,96,413	.. ...
	During 1888-89 ...	.....	..	..	.....	.....	... ..	.....	.....	.....
Orissa coast canal	To end of previous year	31,45,795	7,00,898	1,71,347	38,222	.....	40,56,262	98,861	41,55,123	.....
	During 1888-89 ...	70,295	24,963	3.464	—911	.....	97,811	3,495	1,01,306	.....
Calcutta and Eastern canals.	To end of previous year	44,45,171	3,74,431	3,45,587	14,377	.....	51,79,566	59,550	52,39,116	.....
	During 1888-89 ...	40.448	10,765	229	—3,580	.....	47,862	1,507	49,369	.....
Total ...	To end of previous year	82,13,776	17,68,306	5,54,143	52,599	... ..	1,05,88,824	2,76,483	1,08.65,307	.....
	During 1888-89 ...	1,09,543	35,728	3,693	—4.491	.....	1,44,473	5,002	1,49,475	.....
Grand Total	To end of previous year	4,91,11,647	1,33,45,670	54,08,812	3,93,751	4,37,900	6,86,97,780	19,16,812	7,06,14,592	3,17,24,078
	During 1888-89 ...	6,83,423	1,62,795	40,083	32,719	.....	9,19,020	23,231	9,42,251	23,39,849

NOTE.

Receipts on capital account deducted from the following heads:—

		Works.	Establishment.	Tools.	Total.
		Rs.	Rs.	Rs.	Rs.
Orissa project ...	To end of previous year...	36,459	13,300	28,280	78,039
	During 1888-89 ...	7,738	.....	.....	7,738
Midnapore canal	To end of previous year...	11,874	7,300	11,590	30,764
	During 1888-89 ...	29	.....	.....	29
Tidal canal ...	To end of previous year...	.....	.....	915	915
	During 1888-89 ...	.....	.....	.....	.....
Sone project ...	To end of previous year...	1,40,842	32,711	1,33,640	3,07,193
	During 1888-89 ...	44	.....	.....	44
Tirhoot project ...	To end of previous year...	45	74	39	158
	During 1888-89 ...	.....	.....	.....	.....

		Works.	Establishment.	Tools.	Total.
		Rs.	Rs.	Rs.	Rs.
Damudar project	To end of previous year...	37,949	.....	2,300	40,249
	During 1888-89 ...	1,200	.....	.....	1,200
Sarun project ...	To end of previous year...	498	.....	.....	498
	During 1888-89 ...	.....	.....	.....	.....
Orissa coast canal	To end of previous year...	3,006	260	5	3,271
	During 1888-89 ...	7	.....	.....	7
Calcutta and Eastern canals.	To end of previous year...	41,553	.....	.....	41,553
	During 1888-89 ...	.....	.....	.....	.....

I

PUBLIC WORKS

STATEMENT SHOWING THE FINANCIAL RESULTS OF IRRIGATION

Realisations under Main heads of

Irrigation Works.	REVENUE (ACTUAL RECEIPTS).									
	Irrigation.			Navigation.	Plantations and land.	Water-power.	Miscellaneous.	Total.	Refunds of revenue.	Gross revenue, less refunds.
	Water-rates directly paid.	Share of land revenue.	Total.							
1	2	3	4	5	6	7	8	9	10	11
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Major Irrigation Works.										
Orissa project	1,51,365	.....	1,51,365	77,908	1,450	.....	12,792	2,43,515	221	2,43,294
Midnapore canal	91,016	.....	91,016	1,49,480	44	.....	11,255	2,51,795	285	2,51,510
Tidal ,, ...	.....	.....	.....	53,021	64	.....	1,185	55,170	73	55,097
Sone project	7,59,556	.....	7,59,556	57,829	383	835	25,286	8,43,889	12,011	8,31,278
Total ...	10,01,937	.....	10,01,937	3,39,138	1,941	835	50,518	13,94,369	13,190	13,81,179
Minor Works and Navigation.										
Tirhoot project	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Damoodur ,, ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sarun ,, ...	20,415	.....	20,415	.....	6	.....	393	20,814	.....	20,814
Orissa coast canal	.....	.....	.....	65,047	.....	.....	1,381	66,428	254	66,174
Calcutta and Eastern canals	.....	.....	.....	5,69,920	711	.....	4,513	5,75,144	19	5,75,125
Nuddea rivers	.....	.....	.....	1,01,791	.....	.....	97	1,01,888	.....	1,01,888
Total ...	20,415	.....	20,415	8,26,758	717	.....	6,384	8,54,974	273	8,54,001
Grand Total ...	10,22,352	.....	10,22,352	11,65,896	2,658	835	56,902	22,48,643	13,463	22,35,180

(a) Irrigation revenue officers specially

NOTE.—The charges for "Direction" and "Executive" establishment have been equally

C.

DEPARTMENT, BENGAL.

WORKS IN BENGAL FOR THE YEAR ENDING 31ST MARCH 1889.

Revenue and Working expenses.

WORKING EXPENSES.																	
REVENUE MANAGEMENT.					MAINTENANCE OF WORKS.												
Establishment.					Establishment.												
Direction.	Executive.	Navigation.	Civil Officers (a).	Total revenue management.	Direction.	Executive.	Medical.	Total.	Works.	Repairs.	Sundries.	Tools and plant.	Plantations.	Total cost of maintenance.	Indirect charges.	Grand total, working expenses.	Net revenue.
13	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
5,917	20,183	15,754	43,161	93,995	5,918	29,183	...	35,101	.....	2,35,092	...	21,156	1,602	2,92,951	18,073	4,05,019	*-1,61,725*
2,654	15,402	7,550	25,927	51,533	2,053	15,402	...	18,055	.....	1,05,104	...	24,335	1,035	1,48,529	9,742	2,09,804	41,766
1,316	6,970	3,195	.....	11,481	1,316	6,970	...	8,286	1,718	50,468	...	2,868	452	63,792	2,767	78,040	*-22,943*
8,465	90,373	14,165	1,58,249	2,71,252	8,465	90,374	...	98,839	10,426	3,19,166	...	33,920	9,016	4,71,367	51,813	7,94,462	86,846
18,352	1,41,928	40,644	2,27,337	4,28,261	18,352	1,41,929	...	1,60,281	12,144	7,09,830	...	82,279	12,105	9,70,639	82,395	14,87,295	*- 1,06,116*
.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	...	.....	.....	.....	.....	.....	.....
600	4,525	.....	.....	5,125	599	4,524	...	5,123	.....	23,737	...	673	1,239	29,772	1,435	36,332	*-15,518*
1,065	4,623	6,123	.....	11,811	1,065	4,624	...	5,689	.....	42,606	...	14,462	.....	62,757	2,450	77,018	*-10,844*
4,205	19,285	37,684	.....	61,174	4,206	19,285	...	23,491	4,573	1,63,230	...	20,054	426	2,20,774	11,853	2,93,801	2,81,324
2,223	7,971	23,006	.....	33,200	2,224	7,971	...	10,195	.....	88,933	*-14*	2,380	.....	1,01,494	6,075	1,40,769	51,119
8,093	36,404	66,813	.....	1,11,310	8,094	36,404	...	44,498	4,573	3,17,506	*-14*	46,569	1,665	4,14,797	21,813	5,47,920	
26,445	1,78,333	1,07,457	2,27,337	5,39,571	26,446	1,78,333	...	2,04,779	16,717	10,27,336	*-14*	1,28,848	13,770	13,91,436	1,04,208	20,35,215	1,99,965

employed in collection of revenue.
(approximately) apportioned under he heads "Revenue Management" and "Maintenance."

IIC.

PUBLIC WORKS DEPARTMENT, BENGAL.

STATEMENT SHOWING THE FINANCIAL RESULTS OF IRRIGATION WORKS IN BENGAL FOR THE YEAR 1888-89 BASED ON ACTUAL RECEIPTS.

Principal results of operations for the year ended 31st March 1889.

Irrigation Works.	Direct and indirect outlay to end of 1888-89.	Gross receipts, direct and indirect, from all sources.	Working expenses, direct and indirect.	Net revenue (excluding charges for interest).	Interest at 4 per cent. on direct capital outlay at commencement of year and at 3 per cent. on outlay during the year.	Surplus revenue after paying interest on direct capital outlay.		Excess charges, including interest on direct capital outlay.	
						Amount.	Percentage on total sum at charge.	Amount.	Percentage on total sum at charge.
1	2	3	4	5	6	7	8	9	10
Major Irrigation Works.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
In operation.									
Tidal Canal	18,40,296	55,097	78,040	—22,943	71,820	.....	.....	94,763	5·15
In progress.									
Orissa Project	2,40,68,803	2,43,294	4,05,019	—1,61,725	9,29,024	.....	.....	10,90,749	4·53
Midnapore Canal	84,49,721	2,51,510	2,09,804	41,706	3,30,587	.....	.....	2,88,881	3·42
Sone Project	2,61,83,241	8 31,278	7,94,019	36,846	10,08,418	.....	.....	9,71,572	3·71
Total ...	6,05,42,061	13,81,179	14,87,295	—1,06,116	23,39,849	.....	.....	24,45,965	4·04
Minor Works and Navigation.									
In operation.									
Sarun Project	6,96,413	20,814	36,332	—15,518	.....	.....	.....	.....	.....
Calcutta and Eastern Canals ...	52,88,485	5,75,125	2,93,801	2,81,324	.....	.....	.....	.....	.....
Nuddea Rivers	.....	1,91,888	1,40,769	51,119	.....	.....	.....	.....	.....
In progress.									
Orissa Coast Canal	42,56,429	66,174	77,018	—10,844	.....	.....	.....	.....	.....
Abandoned or held in abeyance.									
Tirhoot Project	6,06 075	.....	.....	.....	.....	.....	.....	.....	.....
Damoodar Project	1,67,380	.....	.....	.....	.....	.....	.....	.....	.....
Total ...	1,10,14,782	8,54,001	5,47,920	3,06,081	.....	.....	.....	.....	.....

IIIC.

PUBLIC WORKS DEPARTMENT, BENGAL.

DEMANDS AND REALIZATIONS DURING THE YEAR 1888-89.

	Balance of demand unrealized at commencement of year.	Demands of the year.	Total.	Deduct remissions not including cash refunds.	Net total.	Deduct amount unrealized at close of the year.	Actual receipts of the year.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Major Irrigation Works.							
Orissa project	92,109	2,88,915	3,81,024	22,912	3,58,112	1,14,597	2,43,515
Midnapore canal	56,493	2,84,116	3,40,609	4,041	3,36,568	84,773	2,51,795
Tidal do	.....	55,170	55,170	.....	55,170	.....	55,170
Sone project	4,11,281	8,37,550	12,48,831	24,329	12,24,502	3,80,613	8,43,889
Total ...	5,59,883	14,65,751	20,25,634	51,282	19,74,352	5,79,983	13,94,369
Minor Works and Navigation.							
Sarun project	33,492	22,249	55,741	.....	55,741	34,927	20,814
Orissa Coast canal	.....	66,428	66,428	.....	66,428	.....	66,428
Calcutta and Eastern canals ..	.....	5,75,144	5,75,144	.....	5,75,144	.....	5,75,144
Nuddea rivers	.....	1,91,888	1,91,888	.....	1,91,888	.....	1,91,888
Total ...	33,492	8,55,709	8,89,201	.....	8,89,201	34,927	8,54,274
GRAND TOTAL ...	5,93,375	23,21,460	29,14,835	51,282	28,63,553	6,14,910	22,48,643

NOTE A.—Refunds of revenue have not been deducted from actual receipts of the year.
NOTE B.—The demand of the year, as shewn in this table, is that portion of the demand which was both legally recoverable and of which the assessments were completed, within the year.

VC

PUBLIC WORKS DEPARTMENT, BENGAL.

[AL RESULTS OF : BASED ON ASS]

888-89

Principal results of operations for the year ended 31st March 1889.

Irrigation Works.	Capital outlay (direct and indirect) to end of the year.	Revenue assessed during the year.								Working expenses, direct and indirect.	Net assessed revenue of the year.	Percentage on capital outlay to end of the year.
		Direct Assessed Revenue.						Indirect revenue. Land revenue due to operations of canal.	Grand Total.			
		Occupiers' rate (water-rates.)	Owners' rate.	Plantations.	Water power.	Navigation.	Miscellaneous.	Total.				
Major Irrigation Works.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Orissa project	2,40,68,803	2,42,808	.....	1,450	.....	77,908	12,792	3,34,958	.....	3,34,958	4,05,019	—70,061	·29 Deficit.
Midnapore canal	84,49,721	1,31,433	.....	44	.....	1,49,480	11,255	2,92,212	.....	2,92,212	2,09,804	82,408	·97
Tidal canal	18,40,296	.....	.....	64	.....	53,921	1,185	55,170	.....	55,170	78,040	—22,870	1·24 Deficit.
Sone project	2,61,83,241	8,05,790	.....	383	835	57,829	25,286	8,90,123	.....	8,90,123	7,94,432	95,691	·36
Total ...	6,05,42,061	11,80,031	.....	1,941	835	3,39,138	50,518	(a)15,72,463	.....	15,72,463	14,87,295	—85,168	·14
Minor Works and Navigation.													
Sarun project	6,96,413	21,850	.....	6	.....	.....	393	22,249	.....	22,249	36,332	—14,083	2·02 Deficit.
Orissa Coast canal	42,56,429	.....	.....	.....	.....	65,047	1,381	66,428	.....	66,428	77,018	—10,590	·24 Deficit.
Calcutta and Eastern canals ...	52,88,485	.....	.....	66	.....	5,69,920	5,158	5,75,144	.....	5,75,144	2,93,801	2,81,343	5·32
Nuddea rivers	.....	.....	.....	.....	.....	1,91,791	97	1,91,888	.....	1,91,888	1,40,769	51,119	.....
Total ...	1,02,41,327	21,850	.....	72	.....	8,26,758	7,029	(a)8,55,709	.....	8,55,709	5,47,920	3,07,789	3·00

ID.

PUBLIC WORKS DEPARTMENT, BENGAL.

STATEMENT OF TRAFFIC ON CANALS IN BENGAL DURING THE YEAR 1888-89.

	Orissa canals.	Midnapore canal.	Hidgellee Tidal canal.	Sone canals.	Calcutta and Eastern canals.	Orissa Coast canal.	Total.	Nuddea rivers.
Length of canal open for navigation ... ... Miles	177	72	29	218½	(a)27	97½	621	477
Receipts—Tollage on private boats ... ... Rs.	62,136	(b)1,44,694	53,448	34,746	5,65,337	64,217	9,24,568	1,00,910
,, Government boats ... ... ,,	5,476	.....	208	9,232	.....	453	15,369	.....
,, Rafts ... ... ,,	2,218	2,076	254	8,184	154	340	13,226	839
Carrying operations or transport services. } Government boats ... ,,	8,078	.....	.....	(c)5,667	.....	.....	13,745	.....
Fines and sundries ... ... ,,	.....	2,720	11	.....	4,429	37	7,197	42
Total receipts ... ,,	77,908	1,49,490	53,921	57,829	5,69,920	65,047	9,74,105	1,91,791
Maintenance charges, including special navigation establishment ... ... ,,	46,606	12,480	78,040	40,373	2,93,801	77,018	5,48,318	1,40,769
Net revenue of year ... ... ,,	31,302	1,37,000	(−)24,119	17,456	2,76,119	(−)11,971	4,25,787	51,022
Total number of boats plying cargo ... ... No.	10,156	21,077	15,411	4,610	104,340	12,188	168,091	28,269
,, ,, passenger ... ... ,,	1,319	13,483	1,070	411	8,687	1,479	26,449	10,955
,, registered tonnage of boats by canal measurement, cargo ... ... Tons	123,884½	318,520	153,955	83,775	2,778,743	120,854	3,579,731½	826,306
,, registered tonnage of boats by canal measurement, passenger ... ... ,,	29,780½	73,023	11,089	9,474	23,235	20,367	167,568½	13,196
Ton mileage—Up ...	1,906,462	5,477,255	1,929,286	1,549,826	22,135,832	2,216,041	35,214,802	.....
Down ...	2,400,666	3,849,311	1,220,153	3,392,800	2,994,862	1,585,910	15,443,702	... ,,
Total ...	4,307,128	9,326,566	3,149,539	4,942,626	25,130,694	3,801,951	50,658,504	.....
Estimated value of cargoes—Up ... Rs.	22,47,397	60,56,942	16,14,108	20,95,493	6,28,62,526	13,11,721	7,61,88,186	1,43,80,845
Down ... ,,	22,92,402	70,27,254	16,69,290	34,48,954	82,13,003	10,42,269	2,36,93,181	2,23,04,456
Total ... ,,	45,39,799	1,30,84,196	32,83,407	55,44,446	7,10,75,529	23,53,990	9,98,81,367	3,66,94,301
r of passengers—Total ... No.	68,203	107,259	34,032	40,635½	52,937	52,670	415,736½	50,555
), feet×feet×feet—Up ... c. ft.	47,745	182,974	5,373	18,425	21,032	16,240	291,789	7,485
,, ,, ,, Down ... ,,	288,783	3,701	28,244	2,701,651	21,222	10,109	3,053,710	106,102
Total ... ,,	336,528	186,675	33,617	2,720,076	42,254	26,349	3,345,499	113,587
Estimated value of rafts—Total ... Rs.	60,158	86,073	17,716	2,59,583	79,306	9,579	5,13,415	1,04,248
Tollage on boats per ton per mile ...	3·01 pies	2·9 pies	3·3 pies	1·7 pies	.....	3·3 pies	.....	...
Tollage on rafts per 100 cubic feet ...	0·65 rupees	1-1-0 rupee	1·4 annas	4·7 annas	.....	1·20 rupees	.....	0·84 rupees

(a) This length is that of the Calcutta and new canals and Tolly's nullah. The Eastern canals are 313 miles in length, of which the inner boat route 186 miles, outer boat route 127 miles, and steamer route 350 miles,—total length 690 miles.
(b) Includes toll, amounting to Rs. 21,428, paid by Messrs. Hoare, Miller & Co., who maintain a transport service on the canal.
(c) This consists of (1) hire of three Government steamers, Rs. 4,000; (2) hire of four Government cargo boats, Rs. 1,300; and (3) hire of the accommodation, jolly-boats and mud punts, Rs. 367.

IID.

PUBLIC WORKS DEPARTMENT, BENGAL.

DESCRIPTION AND QUANTITIES OF GOODS, &c., CARRIED ON CANALS IN BENGAL DURING THE YEAR 1888-89.

	ORISSA CANALS.						MIDNAPORE CANAL.						HIDGELLEE TIDAL CANAL.						SONE CANALS.					
	TOTAL.				PRIVATE.		TOTAL.				PRIVATE.		TOTAL.				PRIVATE.		TOTAL.				PRIVATE.	
	Quantity—Tons.			Value.	Quantity.	Value.	Quantity—Tons.			Value.	Quantity.	Value.	Quantity—Tons.			Value.	Quantity.	Value.	Quantity—Tons.			Value.	Quantity.	Value.
	Up.	Down.	Total.	Rs.	Tons.	Rs.	Up.	Down.	Total.	Rs.	Tons.	Rs.	Up.	Down.	Total.	Rs.	Tons.	Rs.	Up.	Down	Total.	Rs.	Tons.	Rs.
Grain	14,801	7,685	22,486	12,27,000	22,486	12,27,000	67,388	6,665	74,053	33,65,036	74,053	33,65,036	37,551	48	37,599	14,04,500	37,599	14,04,500	834	12,719	13,553	10,47,029	13,553	10,47,029
Cotton ...	1½	55½	57	11,988	57	11,988	26	45	71	29,862	71	29,862	...	...	...	...	...	...	45	4	49	40,660	49	40,660
Oilseeds	401½	1,350	1,751½	1,73,337	1,751½	1,73,337	1,214	1,654	2,868	3,24,861	2,868	3,24,861	48	4	52	3,250	52	3,250	87	6,972	7,059	6,90,252	7,059	6,90,252
Salt	371½	1,741½	2,113	1,95,292	2,113	1,95,292	...	16,244	16,244	15,06,964	16,244	15,06,964	...	4,515	4,515	5,00,915	4,515	5,00,915	3,788	148	3,936	3,79,976	3,936	3,79,976
Piece-goods ...	24½	428½	453	64,778	453	64,778	78	300	378	11,69,081	378	11,69,081	...	388	388	2,75,950	388	2,75,950	2,295	208	2,503	7,83,769	2,467	7,81,269
Metals	2	...	2	1,240	2	1,240	506	870	1,376	12,64,225	1,376	12,64,225	22	60	91	18,237	69	12,237	146	29	175	7,05,437	108	6,96,412
Building materials	1,037½	22,636½	23,674	1,32,430	11,817	1,09,967	3,158	328	3,486	18,583	3,486	18,582	500	357	857	6,622	815	6,452	1,597	3,113	4,710	52,215	2,602	22,944
Miscellaneous ...	7,276½	7,538½	14,815	27,24,952	14,767	27,20,719	12,859	9,693	22,552	53,61,113	22,552	53,61,113	6,964	5,766	12,730	10,61,366	12,726	10,60,866	2,824	11,835	14,659	17,96,555	10,720	17,86,766
Fuel	1,640	586	2,226	8,713	1,970½	6,275	1,331	2,592	3,923	44,472	3,933	44,472	441	1,280	1,721	12,567	1,571	11,198	589	2,681	3,270	23,543	2,820	18,155
Timber	C. ft. 7,056	C. ft. 27,462	C. ft. 34,518	45,917	C. ft. 34,518	45,884	C. ft. 165,377	C. ft. 3,271	C. ft. 168,648	85,403	C. ft. 168,648	85,403	C. ft. 3,473	C. ft. 21,619	C. ft. 25,092	16,873	24,376	16,893	498	8,077	8,575	79,987	8,119	63,856
	No. 6,715	No. 11,948	No. 18,663		No. 18,640																			
Bamboos	No. 1,600	No. 758,536	No. 760,136	14,290	No. 760,136	14,290	C. ft. 17,597	C. ft. 430	C. ft. 18,027	670	C. ft. 18,027	670	C. ft. 1,900	C. ft. 6,625	C. ft. 8,525	843	8,225	843	897	12,899	13,796	2,04,606	13,796	2,04,606
Total Tons ...	25,556	42,021½	67,577½	45,99,957	55,417	45,69,790	86,560	38,391	124,951	1,31,70,269	124,951	1,31,70,269	45,526	12,427	57,953	33,01,123	57,735	32,92,784	13,609	58,685	72,285	58,94,029	65,229	57,33,925
Total C. ft. ...	7,056	7,462	34,518		34,518		182,974	3,701	186,675		186,675		5,373	28,244	33,617		33,161		...	...	...	...	...	...
Total No. ...	8,315	770,484	778,799		778,776		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

IID—*concluded.*

PUBLIC WORKS DEPARTMENT, BENGAL.

DESCRIPTION AND QUANTITIES OF GOODS, &c., CARRIED ON CANALS IN BENGAL DURING THE YEAR 1888-89.

	ORISSA COAST CANAL.						CALCUTTA AND EASTERN CANALS.						NUDDEA RIVERS.					
	TOTAL.				PRIVATE.		TOTAL.				PRIVATE.		TOTAL.				PRIVATE.	
	Quantity—Tons.			Value.	Quantity.	Valu.	Quantity—Tons.			Value.	Quantity.	Value.	Quantity—Tons.			Value.	Quantity.	Value.
	Up.	Down.	Total.	Rs.	Tons.	Rs.	Up.	Down.	Total.	Rs.	Tons.	Rs.	Up.	Down.	Total.	Rs.	Tons.	Rs.
Grain	32,414	2,692	35,106	12,89,972	35,106	12,89,972	327,264	81	327,345	2,91,97,911	327,345	2,91,97,911	6,711	100,384	107,095	62,42,813	107,095	62,42,813
Cotton	...	7	7	2,200	7	2,200	717	...	717	3,61,550	717	3,61,550	1	19	20	4,080	20	4,080
Oilseeds	154	...	154	12,435	154	12,435	9,882	89	9,971	10,85,358	9,971	10,85,358	599	29,932	30,531	28,66,198	30,531	28,66,198
Salt	10	2,583	2,593	2,21,858	2,593	2,21,858	12,832	65,340	78,172	75,16,884	78,172	75,16,884	39,824	675	40,499	35,74,866	40,499	35,74,266
Piece-goods... ...	...	217	217	1,53,215	217	1,53,215	...	...	...	...	...	...	27	3	30	42,275	30	42,275
Metals	11	24	35	8,465	24	6,750	668	344	1,012	2,32,060	1,012	2,32,060	1,461	254	1,715	7,42,104	1,715	7,42,104
Building materials	297	338	545	9,690	345	9,406	91,229	1,305	92,534	11,56,829	92,534	11,56,829	2,782	1,554	4,336	60,376	4,336	60,376
Miscellaneous ...	2,007	4,222	6,229	6,36,610	6,226	6,36,322	242,319	12,873	255,192	3,00,21,360	255,192	3,00,21,360	44,654	131,104	175,758	2,30,00,913	175,758	2,30,00,913
Fuel	564	1,265	1,829	19,545	1,695	17,660	162,354	24,702	187,056	15,03,577	187,056	15,03,577	13,507	1,287	14,794	1,60,676	14,794	1,60,676
Timber	C. ft. 8,678	C. ft. 2,037	C. ft. 10,715	8,211	C. ft. 10,715	8,211	C. ft. 10,062	C. ft. 21,222	C. ft. 31,284	78,208	C. ft. 31,284	78,208	C. ft. 5,949	C. ft. 49,744	C. ft. 55,693	98,622	C. ft. 55,693	98,622
Bamboos	C. ft. 7,562	C. ft. 8,072	C. ft. 15,634	1,368	C. ft. 15,634	1,368	C. ft. 10,970	...	C. ft. 10,970	1,098	C. ft. 10,970	1,098	C. ft. 1,536	C. ft. 56,358	C. ft. 57,894	5,626	C. ft. 57,894	5,626
Total Tons ...	35,367	11,348	46,715	23,63,569	46,367	23,59,397	847,265	104,734	951,999	7,11,54,835	951,999	7,11,54,835	109,566	265,212	374,778	3,67,98,549	374,778	3,67,98,549
Total C. ft. ..	16,240	10,109	26,349		26,349		21,032	21,222	42,254		42,254		7,485	106,102	113,587		113,587	

Supplementary statement giving details of "Miscellaneous" articles of traffic on the Calcutta and Eastern Canals.

DESCRIPTION.	Quantity.	Value.
	Tons.	Rs.
Jute	137,854	1,63,63,405
Jaggery	12,265	13,27,185
Sugar	1,162	2,82,830
Tobacco	1,532	3,01,026
Fish	1,804	5,03,139
Hides	209	49,114
Poultry	306	2,06,613
Hay and straw	16,548	3,58,148
Oil	13,195	12,47,495
Earthenware	3,190	67,116
Other miscellaneous	67,127	87,15,289
Total ...	255,192	3,00,21,360

IE.

PUBLIC WORKS DEPARTMENT, BENGAL.

STATEMENT OF AREAS IRRIGATED BY IRRIGATION WORKS IN BENGAL DURING THE YEAR 1888-89.

Name of Canal.	Areas irrigated in acres.							Average discharge, cubic feet per second.				Areas irrigated per cubic foot per second.			
	Kharif.	Rabi.	Total.	Flow.	Lift.	Double-cropped.		At Head.		Utilised.		Discharge at head.		Utilised.	
						Area irrigated.	Percentage of total area.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.
Irapara Canal and its branches	70,274	2,522	72,796	68,524	4,273	.....	.....	759·84	231·42	700·97	213·32	92·48	10·89	100·25	11·82
undah ditto ditto	40,165	226	40,391	38,930	1,461	.....	.....	456·25	62·25	184·75	17·00	82·60	3·63	217·40	13·29
Level Canal, Range I	18,091	1	18,092	16,451	1,641	.....	.....	255·76	146·32	161·48	36·51	70·73	.....	112·03	0·02
Total Mahanuddy Series ...	128,530	2,749	131,279	123,905	7,374	.....	.....	1,501·85	439·99	1,047·20	266·83	85·58	6·24	122·73	10·30
High Level Canal, Range II	2,355	30	2,385	2,334	51	.....	.....	75·97	14·84	75·97	2·30	30·99	2·02	30·99	13·04
Ditto, ditto III	25,628	.....	25,628	25,426	202	.....	.....	128·09	38·46	128·09	38·27	200·07	.....	200·07	.....
Total Brahmini-Byturni Series ...	27,983	30	28,013	27,760	253	.....	.....	204·06	53·30	204·06	40·57	137·13	0·56	137·13	0·74
Total Orissa Canals ...	156,513	2,779	159,292	151,665	7,627	.....	.....	1,705·91	493·29	1,251·26	307·40	91·74	5·63	125·08	9·04
Under Midnapore weir	60,263	.....	60,263	60,263	.....	.....	.....	370	.....	344	.....	152	.....	164	.....
Under Panchkoorah weir	9,514	.....	9,514	9,450	64	.....	.....	50	49	30	3	111	68	185	1,123
Total Midnapore Canal ...	69,777	.....	69,777	69,713	64	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eastern Main Series	55,569	11,436	66,995	63,972	3,023	.....	.....	1,123	525	996	275	49·4	29·6	55·7	56·5
Western ditto	191,363	97,551	288,914	268,473	20,441	.....	.....	2,664	1,733	2,216	1,246	71·8	60·09	86·3	83·5
Total Sone Canals ...	246,922	108,987	355,909	332,445	23,464	.....	.....	3,787	2,258	3,212	1,521	65·2	53·	76·8	78·7
Saran Canals	3,897	3,316	7,213	.....	.....	.....	.....	282	333	282	333	13·8	9·9	13·8	9·9

IIE.

PUBLIC WORKS DEPARTMENT, BENGAL.

STATEMENT SHOWING INCIDENCE OF WORKING EXPENSES AND ASSESSED WATER-RATES ON CANALS IN BENGAL DURING 1888-89.

Name of Canal.	Average discharge of the year at canal head in cubic feet per second.	Water-rate assessed in 1888-89.					Gross assessed revenue from all sources.	Working expenses, direct and indirect.	Area irrigated during the year 1888-89.	Working expenses.			Occupier's rate (water-rate).		Total water-rates, direct and indirect.	
		Occupiers rate).	Owners.	Total direct.	Indirect.	Total of direct and indirect.				Per cent. on gross revenue.	Per acre irrigated.	Per cubic foot per second of discharge at canal head.	Per acre irrigated.	Per cubic foot per second of discharge at canal head.	Per acre irrigated.	Per cubic foot per second of discharge at canal head.
Major Irrigation Works.		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Acres.							
Orissa project	.....	2,42,808	.....	2,42,808	.....	2,42,808	3,34 958	4,05,019	159,292	120·92	2·54	.....	1·52	.....	1·52	.....
Midnapore canal	.....	1,31,433	.....	1,31,433	.....	1,31,433	2,92,212	2,09,804	69,777	71·80	3·00	.....	1·88	.....	1·88	.....
Tidal canal	.....	.....	.....	.....	.....	.....	55,170	78,049	.....	141·45	.....	.....	.....	.....	.....	.....
Sone project	.....	8,05,790	.....	8,05,790	.....	8,05,790	8,90,123	7,94,432	355,909	89·25	2·23	.....	2·26	.....	2·26	.....
Total ...	.....	11,80,031	.....	11,80,031	.....	11,80,031	15,72,463	14,87,295	584,978	94·58	2·54	.....	2·02	.....	2·02	.....
Minor Works and Navigation.																
Sarun project	.....	21,850	.....	21,850	.....	21,850	22,249	36,332	7,213	163·29	5·03	.....	3·03	.....	3·03	.....
Orissa coast canal	.....	.....	.....	.....	.....	.....	66,428	77,018	.....	115·94	.....	.....	.....	.....	.....	.....
Calcutta and Eastern canal	.....	.....	.....	.....	.....	.....	5,75,144	2,93,801	.....	51·09	.....	.....	.....	.....	.....	.....
Nuddea rivers	.....	.....	.....	.....	.....	.....	1,91,888	1,40,769	.....	73·36	.....	.....	.....	.....	.....	.....
Total ...	.....	21,850	.....	21,850	.....	21,850	8,55,709	5,47,920	7,213	64·03	.....	.....	.....	.....	.....	.....

Note A.—Columns 2, 13, 15 and 17 cannot be filled in.

Note b.—In this table the water-rates shown as assessed during the year are the amounts for which occupiers have rendered themselves liable in return for canal water supplied during the year, and include some demands which were not legally recoverable, and others of which the assessment papers were not completed, till after the close of the year.

IIIE.

PUBLIC WORKS DEPARTMENT, BENGAL.

STATEMENT OF QUANTITY AND VALUE OF CROPS IRRIGATED IN BENGAL DURING THE YEAR 1888-89.

Description.	Orissa canals.		Midnapore canals.		Sone canals.		Sarun canals.		Total.	
	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Estimated value.	Area irrigated.	Value.
	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
Gardens and orchards ...	102	18,360	...	...	33	940	...	...	135	19,300
Sugarcane	196	78,400	...	...	22,468	22,69,245	...	...	22,664	23,47,645
Cereals ... Wheat ...	...	...	...	...	42,742	11,51,410	...	...	42,742	11,51,410
Barley ...	...	...	...	...	15,521	2,87,002	..	...	15,521	2,87,002
Rice ...	156,308	50,01,856	65,865	16,46,625	221,961	65,14,164	3,785	68,130	447,919	1,32,30,775
Maize ...	...	...	...	...	...	...	...	...	...	...
Juar ...	...	...	...	...	...	...	...	...	...	...
Cheena ...	1	12	...	...	6	60	...	...	7	72
Miscellaneous...	26	260	...	...	4,355	65,347	2,808	56,160	7,189	1,21,767
Pulse ... Gram ...	...	...	...	...	4,640	60,186	...	...	4,640	60,186
Peas ...	...	...	...	...	2,169	1,31,855	...	...	2,169	1,31,855
Miscellaneous...	292	8,760	...	...	4,027	4,788	...	...	4,319	13,548
Fodder crops... Grass, lucerne	...	...	...	...	...	...	...	...	...	...
Fibres ... Cotton, &c. ...	2,125	42,505	...	...	1	30	..	...	2,126	42,535
Dyes ... Indigo, &c. ...	186	12,825	...	...	1,001	40,012	112	5,600	1,299	58,437
Drugs ... Opium ...	...	...	...	...	1,785	81,479	...	...	1,785	81,479
Tobacco ...	...	...	...	...	...	...	371	61,215	371	61,215
Oilseeds ... Mustard ...	2	60	...	...	216	6,430	...	...	218	6,490
Linseed, &c. ...	44	880	...	...	13	195	...	...	57	1,075
Miscellaneous	10	250	...	...	24,209	3,94,464	137	2,740	24,356	3,97,454
Total ...	159,292	51,64,168	65,865	16,46,625	345,147(a)	1,10,07,607	7,213	1,93,845	577,517	1,80,12,245
Land insufficiently irrigated ...	...	...	3,912	97,800	...	...	...		3,912	97,800
Grand Total ..	159,292	51,64,168	69,777	17,44,425	345,147	1,10,07,607	7,213	1,93,845	581,429	1,81,10,045

(a) 345,147 acres together with 10,762 acres *hot-weather irrigation* make up the total 355,909. The *hot-weather irrigation* is not valued, as it is almost entirely sugarcane which is already included in the above statement.

IVE.

WORKS DEPARTMENT, BENGAL.

COMPARATIVE STATEMENT OF IRRIGATION AND RAINFALL FOR THE YEARS 1888-89 AND 1887-88 IN BENGAL.

Works supplying irrigation.	Civil districts.	Total area in acres.	Cultivated area in acres.	Areas irrigated in acres.						Rainfall.	
				1888-89.			1887-88.				
				Kharif, inclusive of sugarcane.	Rabi, inclusive of hot-weather.	Year.	Kharif, inclusive of sugarcane.	Rabi, inclusive of hot-weather.	Year.	1888-89.	1887-88.
										Inches.	Inches.
Orissa canals ...	Cuttack	.....	.....	130,885	2,779	133,664	101,435	502	101,937	47·34	46·52
	Balasore	.....	... ..	25,628	.....	25,628	7,569	.....	7,569	51·77	53·20
	Total Orissa Canals ...	.....	.....	**156,513**	**2,779**	**159,292**	**109,004**	**502**	**109,506**	**49·55**	**49·86**
Midnapore canal ...	Midnapore	.....	... ..	66,408	3,369*	69,777	64,702	1,162*	65,864	68·00	55·38
Sone canals ...	Shahabad	2,806,400	2,192,500	191,363	97,551	288,914	190,702	63,477	254,179	44·78	41·23
	Patna	1,329,920	1,039,000	25,783	5,637	31,390	25,583	2,537	28,120	48·91	39 47
	Gya	3,015,680	2,356,000	29,806	5,799	35,605	29,150	3,931	33,081	51·88	38·95
	Total Sone canals ...	**7,152,000**	**5,587,500**	**246,922**	**108,987**	**355,909**	**245,435**	**69,945**	**315,380**	... ..	.....
Sarun canals ...	Sarun	1,680,000	1,312,500	3,897	3,316	7,213	1,904	2,314	4,218	42·40	39·66
	GRAND TOTAL ...	.....	.. ...	473,740	118,451	592,191	421,045	73,923	494,968	.....	.....

* Boro rice.

No. IF (*vide* GOVERNMENT OF INDIA'S ORDER No 1101, DATED 6TH JUNE 1889.)

STATEMENT SHOWING THE WATER-RATES PER ACRE IN FORCE ON CANALS IN BENGAL DURING THE YEAR 1888-89.

Canals.	DESCRIPTION OF LEASES AND CROPS	OCCUPIERS' RATES PER ACRE.	
		Flow irrigation.	Lift irrigation.
	ORISSA CIRCLE.		
		Rs. A. P.	Rs. A. P.
ORISSA CANALS ...	I.—For the whole irrigable or rice cultivated area of any village if application is made for a lease of five years	1 8 0	1 0 0
	For the rice crop.		
	II.—For any fractional area of a village or for other terms	3 0 0	2 0 0
	For cold-weather crops.		
	III.—Dalua rice	1 8 0	1 0 0
	IV.—For cotton, tobacco, huldi, ginger, wheat, vegetables, indigo, and all garden produce grown in villages the rice lands of which are leased under rate I ...	1 0 0	0 10 0
	V.—For the above produce when grown in villages the rice lands of which are not leased under rate I	2 0 0	1 8 0
	VI.—For linseed, oilseed, dál and all pulses grown in villages the rice lands of which are not leased under rate I ...	0 8 0	0 5 0
	VII.—For the above produce when grown in villages the rice lands of which are not leased under rate I	1 0 0	0 10 0
	For perennial crops.		
	VIII.—For sugarcane	6 0 0	4 0 0
	IX.—The charge of filling tanks is Re. 1 per 10,000 cubic feet of water used.		
	SOUTH-WESTERN CIRCLE.		
	For the rice crop.		
MIDNAPORE CANAL	I.—Under five-year leases	1 8 0	1 0 0
	II.—Under annual leases	2 8 0	1 10 0
	For winter crops.		
	III.—In exceptional cases when water is available	1 8 0	1 8 0
	IV.—The charge for the unauthorised use of canal water is Rs. 5 per acre per annum or such less sum as is fixed by the Collector.		

Canals.	Description of leases and crops.	Occupiers' rates per acre.	
		Flow irrigation.	Lift irrigation.
	SONE CIRCLE.		
	For water supplied between the 25th June and the 1st April.	Rs. A. P.	Rs. A. P.
	I.—Leases for one year.		
Sone canals ...	Rice	*3 0 0	2 0 0
	Bhadoi, except rice	2 8 0	1 10 8
	Rabi	*2 0 0	1 10 8
	Sugarcane	5 0 0	3 5 4
	II.—Leases for five years.		
	For all crops	2 0 0	2 0 0
	Note.—An extra rate in addition to the above rate is charged for water taken between the 1st April and the 25th June.		
	For water taken between the 1st April and the 25th June.		
	Annual leases only.		
	Special rate for hot months.		
	For all crops	4 0 0	2 10 8
	Note.—For indigo, water is allowed to be taken under this schedule from the 15th March without extra charge. Charges under this schedule are in addition to charges under the Schedules I and II.		
Sarun canals ...	The Sarun canals are not primarily irrigation canals, and the return to Government is in the shape of a guarantee amounting at present to Rs. 21,850 per annum. Guarantors are authorised to charge Re. 1 per acre irrigated, or in the case of water being used for manufacture, Rs. 2 per maund of indigo manufactured.		

* The rate for flow irrigation was reduced from Rs. 2-8 to Rs. 2 per acre for the current season only—*vide* Bengal Government Notification No. 50, dated 19th February 1889.

List of Officers in charge of Irrigation Circles and Divisions during 1888-89.

Circle or Division.	Name of Officer.	Period of charge.
	SECRETARIAT.	
Joint-Secretary, Irrigation Branch.	Colonel J. M. McNeile, R.E.	On special leave.
Officiating ditto, ditto ...	Lieutenant-Colonel C. W. I. Harrison, R.E.	From 1st April 1888 to 31st March 1889. [Acted as Secretary in the Public Works Department, in addition to his other duties, from 15th April to 1st June 1888.]
Under-Secretary, ditto ...	Major A. D. McArthur, R.E.	From 1st April to 3rd June 1888.
Officiating ditto, ditto ...	Mr. G. A. G. Shawe ...	„ 4th August 1888 to 31st March 1889.

Circle or Division.	Name of Officer.	Period of charge.
SUPERINTENDING ENGINEERS IN CHARGE OF CIRCLES.		
Orissa Circle	Mr. R. H. Rhind ...	From 1st April 1888 to 31st March 1889.
Ditto, Personal Assistant	„ J. T. Boase	„ 26th June 1888 to 31st March 1889.
South-Western Circle ...	„ T. H. Wickes ..	„ 1st April to 3rd June 1888.
	Major A. D. McArthur, R.E.	„ 4th June 1888 to 31st March 1889.
Ditto, Personal Assistant	Mr. J. T. Boase ..	„ 7th to 25th June 1888.
	Rai Sahib Krith Chunder Chowdry.	„ 17th December 1888 to 22nd January 1889.
Sone Circle	Mr. C. W. Odling ..	„ 1st April 1888 to 31st March 1889.
Ditto, Personal Assistant	„ K. H. Stephen ...	„ 14th January to 28th February 1889
EXECUTIVE ENGINEERS IN CHARGE OF DIVISIONS.		
Orissa Circle.		
Mahanuddy Division ...	Mr. G. W. Faulkner ...	From 1st April 1888 to 31st March 1889
Acquapada-Jajepore Division	„ A. Monies	„ 1st April to 15th July 1888.
	J. P. Cleghorn	„ 16th July 1888 to 31st March 1889.
Pooree Division	Rai Sahib Raj Kissen Banerjee.	„ 1st to 8th April 1888.
	Mr. J. R. Swinden ...	„ 9th April 1888 to 31st March 1889.
Brahmini-Byturni Division ...	„ C. Taylor	„ 1st April to 24th July 1888.
	„ A. Monies	„ 26th July 1888 to 31st March 1889.
South-Western Circle.		
Cossye Division	Mr. J. P. Scotland	From 1st April 1888 to 31st March 1889
Northern Drainage and Embankment Division.	„ R. E. Carter	„ 1st to 30th April 1888.
	„ T. M. L. Thompson ...	„ 1st May 1888 to 31st March 1889.
Nuddea Rivers Division ...	„ C. E. Livesay	„ 1st April 1888 to 31st March 1889.
Circular and Eastern Canals Division.	„ G. A. G. Shawe	„ 1st April to 3rd August 1888.
	„ C. Taylor	„ 4th August 1888 to 31st March 1889.
Balasore Division	„ A. Hayes	„ 1st April 1888 to 31st March 1889.
Sone Circle.		
Arrah	Mr. W. A. Inglis	From 1st April 1888 to 31st March 1889. (On privilege leave from 10th October 1888 to 10th January 1889.)
	„ K. H. Stephen	From 10th October 1888 to 13th January 1889.
Buxar	„ D. B. Horn	From 1st April 1888 to 31st March 1889.
Eastern Sone	„ M. J. Monckton... ...	„ 1st April to 30th June 1888.
	„ H. F. B. Frost	„ 1st July 1888 to 31st March 1889.
Gunduck	„ M. J. J. P. Norman ...	„ 1st April 1888 to 31st March 1889.
Canal Revenue Officers.		
Deputy Collector, Shahabad...	Baboo Sarada Prasad Chatterjee.	From 1st April 1888 to 31st March 1889.
Sub-Deputy Collector, Shahabad.	Baboo Siva Sunker Sing ...	Ditto ditto. (On privilege leave from 13th to 29th September 1888.)
	„ Jagdam Sahai ...	From 1st April 1888 to 31st March 1889.
Circle Officer, Patna district...	Syud Mahomed Kabeer ...	Ditto ditto.
Ditto, Gya do. ...	Baboo Moti Lall	Ditto ditto.
Deputy Revenue Superintendent, Orissa.	Mr. S. C. Roberts	Ditto ditto.
Ditto, Midnapore ...	Baboo K. C. Ghose	Ditto ditto. (On privilege leave from the 24th January to 31st March 1889.)
	„ Rajendra Nath Roy ...	From 24th January to 31st March 1889.
Collector of Tolls, Calcutta ...	Mr. W. R. Cooksey	„ 1st April 1888 to 31st March 1889.

STATEMENT SHOWING THE ACTUAL RECEIPTS AND EXPENDITURE OF PROVINCIAL SERVICES FOR 1888-89, AND THE REVISED ESTIMATES FOR 1889-90.

Receipts.	Actuals, 1888-89.	Revised estimate, 1889-90.
	Rs.	Rs.
Opening balance ...	33,08,991	26,58,000
Principal Heads of Revenue—		
I.—Land Revenue	90,02,398	88,68,000
III.—Salt	88,105	1,18,000
IV.—Stamps...	1,03,79,239	1,05,75,000
V.—Excise	27,22,910	25,50,000
VI.—Provincial Rates	41,50,323	42,27,000
VII.—Customs	48,891	50,000
VIII.—Assessed Taxes	19,55,698	20,00,000
IX.—Forests	3,38,454	3,85,000
X.—Registration	5,46,772	5,75,000
Total ...	2,93,26,880	2,93,48,000
XII.—Interest	97,383	1,15,000
Post Office, Telegraph and Mint—		
XIV.—Telegraphs	920	1,000
Receipts by Civil Department—		
XVI.—Law and Justice—		
Courts of Law	7,89,538	7,90,000
Jails	7,75,021	7,45,0 0
XVII.—Police	3,38,197	4,06,000
XVIII.—Marine	9,11,734	8,60,000
XIX.—Education	6,11,884	5,70,000
XX.—Medical	1,30,165	1,36,000
XXI.—Scientific and other Minor Departments.	1,05,154	1,76,000
Total ...	37,27,693	36,83,000
Miscellaneous—		
XXII.—Receipts in aid of Superannuation	48,849	46,000
XXIII.—Stationery and Printing	1,75,074	1,60 000
XXV.—Miscellaneous	8,34,785	8,28,000
Total ...	10,58,708	10,34,000
Railways—		
XXVI.—State Railways (gross earnings)		
Eastern Bengal State Railway ...	61,64,804	63,50,000
Other Railways	55,69,065	59,39,000
Total ...	1,17,33,869	1,22,89,000
Irrigation—		
XXIX.—Major Works (direct receipts) ...	13,94,369	14,26,000
XXX.—Minor Works and Navigation—		
By Public Works Department ...	8,67,844	8,39,000
„ Civil Department	1.02,154	1,03,000
Total ...	23,64,367	23,68,000
Buildings and Roads—		
XXXII.—Civil Works—		
By Public Works Department ...	4,74,639	3,50,000
„ Civil Department		3,00,000
Total ...	4,74,639	6,50,000
Contributions	.....	.....
Total ...	4,87,84,465	4,94,88,000
GRAND TOTAL ...	5,20,93,456	5,21,46,000

Expenditure.	Actuals, 1888-89.	Revised estimate, 1889-90.
	Rs.	Rs.
Direct demand on the Revenues—		
1. Refunds and drawbacks ...	1,40,156	1,38,000
2. Assignments and Compensations	1,39,300	1,54,000
3. Land Revenue	35,13,059	35,24,000
5. Salt	21,223	89,000
6. Stamps	3,70,334	3,71,000
7. Excise	1,08,001	1,31,000
8. Provincial Rates	3,17,410	3,25,000
9. Customs	5,24,029	5,35,000
10. Assessed Taxes	74,865	81,000
11. Forests	1,87,702	2,25,000
12. Registration	2,00,729	3,15,000
Total ...	56,94,890	58,88,000
13. Interest on ordinary debt ...	45,802	75,000
Post-office, Telegraph and Mint—		
16. Telegraphs	884	1,000
Salaries and expenses of Civil Department—		
18. General Administration ...	15,71,096	15,93,000
19. Law and Justice—		
Courts of Law	81,01,737	81,01,000
Jails	17,95,795	17,60,000
20. Police	48 34,099	53,12,000
21. Marine	10,71,199	11,48,000
22. Education	24,78,200	24,73,000
24. Medical	14,87,730	15,02,000
25. Political	24,482	24,000
26. Scientific and other minor Departments	3,10,050	3,05,000
Total ...	2,16,34,368	2,22,18,000
Miscellaneous—		
29. Superannuation, &c.	13,70,007	14,26,000
30. Stationery and Printing ...	10,21,438	10,13,000
32. Miscellaneous	2,40,632	2,19,000
Total ...	26,32,077	26,58,000
Famine Relief and Insurance—		
33. Famine relief	54,338	3,75,000
37. Construction of railways ...	—10,893	—2,000
Railways (Revenue account)—		
38. State Railways—		
Working expenses { Eastern Bengal State Railway .	31,01,804	33,50,000
Working expenses { Other Railways ...	27,84,203	27,81,000
Interest on debt ...	32,61,382	34,45,000
40. Subsidized Companies—Land, &c.	—306	1,000
41. Miscellaneous Railway expenditure	1,42,693	92,000
Total ...	93,52,716	96,69,000
Irrigation—		
42. Major Works—		
Working expenses	14,18,000	14,36,000
Interest on debt	23,39,849	25,03,000
43. Minor Works and Navigation—		
By Public Works Department	14,75,746	18,18,000
„ Civil Department ...	1,911	2,000
Total ...	52,35,506	56,24,000
Buildings and Roads—		
45. Civil Works—		
By Public Works Department	39,04,303	30,10,000
„ Civil Department ...	1,19,658	60,000
Total ..	40,23,961	30,70,000
Contributions	7,50,184	7,45,000
Total ...	4,94,35,522	5,03,21,000
Closing balance	26,57,934	18,25,000
GRAND TOTAL ...	5,20 93,456	5,21,46,000

Published for general information.

FINANCIAL DEPT.,
FINANCE;
The 30th January 1890.

H. J. S. COTTON,
Offg. Secy. to the Govt. of Bengal.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, and State and Prospects of the Crops in the different districts of Bengal, as reported to Government, during the week ending the 1st February, 1890.

No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
	BENGAL.		
	Western Districts.		
1	Burdwan Feb. 1, '90	0·06	Weather—cold. Outturn of *amun* 10 annas. *Rubbi* not favourable. Sugarcane and potato fair. Prices of common rice :— Srs. Burdwan ... ... 16½ Culna ... ... 16 Cutwa ... ... 15¼ Raneegunge ... ... 20 per rupee.
2	Bankoora „ 1, '90	Nil	Weather—seasonable. Prospects of *rubbi* crops continue good. Course rice 20 seers per rupee at Sudder and 18 seers at Bissenpore.
3	Birbhum „ 1, '90	Nil	Weather—very cold. Prospects of cold-weather crops, especially sugarcane very good. Prices of rice 16½ seers per rupee at Sudder and 16 seers at Rampore Haut.
4	Midnapur „ 1, '90	Nil	Weather—seasonable. General prospects fair. Harvesting of rice going on in Contai. Indigo and *rubbi* doing well. Prospects of silk cocoons improved. Prices of rice :— Srs. Sudder ... ... 16 Contai ... ... 26 (new) Tamluk ... ... 18 Ghatal ... ... 19 per rupee.
5	Hooghly „ 1, '90	Nil	Weather—cold. Harvesting of paddy over. Outturn of *rubbi* very hopeful. Prices of common rice :— Srs. Sudder and Serampore ... ... 12½ Jehanabad ... ... 17¼ per rupee.
	Serampore ...	0·36	
	Jehanabad ...	0·45	
	Howrah „ 1, '90	Nil	Weather—cold. Prospects of crops good. Common rice sold at Howrah at 12½ seers per rupee during the week.
	Central Districts.		
6	24-Perghs. Feb. 1, '90	Nil	Weather—cool. Prospects good. Yield of *amun* has averaged 16 annas. *Rubbi* crops doing well. Price of ordinary rice 16 seers per rupee.
7	Nuddea „ 1, '90	Nil	Weather—cold. *Moong*, *kalai*, mustard, and sugarcane harvested with fair out turn. Other winter crops doing well.
	Ranaghat ...	0·30	
8	Khoolna „ 1, '90	Nil	Weather—seasonable *Amun* harvest nearly completed; outturn good. Prospects of *boro* and *rubbi* crops satisfactory.
	Bagirhat ...	0·98	
	Satkhira ...	2·03	
9	Jessore „ 1, '90	Nil	Weather—very cold. The rainfall of the week will be beneficial to the spring crops. Mustard being gathered. Price of rice stationary.
	Magura ...	0·17	
	Narail ...	2·51	
	Bongong ...	1·63	
10	Moorshedabad „ 1, '90	Nil	Weather—bright and cold. Wind N.-W. All the *rubbi* crops on the ground are doing well. *Haimanti dhan* nearly all harvested.
	Rajshahye Divn.		
11	Dinagepur „ 1, '90	Nil	Weather—getting cooler. Outturn of *amun* is estimated at 16 annas. Prospect of mustard not favourable. Pressing of sugarcane continues.
	Thakurgaon ...	0·34	
12	Rajshahye „ 1, '90	Nil	Weather—cold with fresh breeze. Condition of spring crops good. Harvesting of *amun* nearly over with good outturn. Sugarcane being reaped all over the district. Ganja and tobacco at Nowgong in good condition. Common rice sells at 16 seers 9 chittacks per rupee.
13	Rungpur „ 1, '90	Nil	Weather—seasonable. *Amun* rice is estimated to have yielded a 15-anna crop.
	Kurigram ...	0·65	Tobacco is flourishing. Sugarcane is being cut and crushed, and mustard
	Nilphamari ...	0·80	gathered with a fair outturn.
14	Bogra „ 1, '90	Nil	Weather—very cold; days somewhat cloudy. Reaping of *amun* almost finished;
	Sherpur ...	0·01	probably not more than one anna remaining to be cut. Other crops
	Nowkhilla ...	0·34	also being gathered. Common rice is being sold at head-quarters at 21 seers per rupee.
15	Pubna „ 1, '90	Nil	Weather—fine and cool. *Amun* outturn estimated at 13 annas. Mustard and tobacco expected to yield 12 annas. Sugarcane will not be above 8 annas. Prices slightly lower.
16	Darjeeling „ 1, '90	Nil	Weather—very cold and bright. Crops doing well and prospects generally good.
17	Jilpigoree „ 1, '90	Nil	Weather—cold. Cutting of *haimanti* paddy completed; 14 annas outturn obtained. Winter crops doing well. Some damage to tobacco reported from Falacutta owing to recent hailstorm. Prices stationary.

No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
BENGAL—*concluded*.			
	Eastern Districts.		
Dacca Divn. 18	Dacca Feb. 1, '90	2·54	Weather—very cold. Heavy rain in the Sudder subdivision. Sowing of *boro* paddy nearly completed. Mustard and pulses being gathered. Rain has done good to the standing crops. Fodder is available. No special change in the prices of food-grains. Common rice sold at from 13 to 16 seers per rupee.
19	Furreedpur „ 1, '90	Nil	Weather—colder and clearer. Produce of date trees below average owing to floods of rainy season. *Boro* rice being sown on churs. Sugarcane being cut. Prospects of cold-weather crops on the ground fair. Tillage for early rice and jute progressing.
20	Backergunge „ 1, '90	Nil	Weater—cool with foggy mornings. Prospects of crops good. Harvesting of *amun* nearly completed; outturn estimated at 16 annas. Common new rice selling at 16 seers per rupee.
21	Mymensingh „ 1, '90	0·22	Weather—very cold. Prospects of crops good. Common rice sells at 14 seers per rupee. Transplantation of *boro dhan* continues.
Chittagong Divn. 22	Chittagong „ 1, '90	Nil	Weather seasonable. State of miscellaneous crops good.
23	Noakholly „ 1, '90	0·02	Weather—seasonable. State of *rubbi* crops good. Rain has done good to them. Price of rice stationary.
24	Tipperah „ 1, '90	0·35	Weather—seasonable. Winter crops doing well. Transplantation of *boro dhan* still going on.
25	Chittagong Hill Tracts. Jan. 31, '90	Nil	Weather—very cold and foggy up to 10 A.M. in the morning, Wind steady from N. Gathering of mustard commenced. Tobacco and chillies progressing.
	Hill Tipperah Feb. 1, '90	Nil	Weather—cold. Chillies and tobacco doing well. *Jum*-cutting commenced in the hills.
BEHAR.			
Patna Divn. 26	Patna „ 1, 90	Nil	Weather—cold. Prospects of *rubbi* continue good. A shower of rain would, however, much benefit the crops Peas and mustard are in pods. Wheat in ear in some places. Poppy is flowering and looks well. Prices of food-grains almost stationary.
27	Gya „ 1, '90	Nil	Weather—cold. Harvesting of paddy nearly finished. Prospects of *rubbi* and poppy favourable. Food-stocks sufficient.
28	Shahabad „ 1, '90	Nil	Weather—very cold and bright all the week, but milder and rather cloudy to-day (1st). Cutting of peas commenced. Other *rubbi* crops and poppy doing well. Sugarcane being pressed. Prices stationary.
29	Durbhunga „ 1, '90	Nil	Weather—very cold with west wind. The late rain has greatly benefited the *rubbi* crops. Mustard is being harvested in places Prospects of poppy continue good. Common rice selling at 19 seers per rupee.
30	Mozufferpur „ 1, '90	0·06	Weather—seasonable. All standing crops doing very well. Mustard being cut. Prospects of poppy good, except the late sowings in Hajipur.
	Hajipur ...	0·05	
	Sitamarhi ...	0·39	
31	Sarun „ 1, '90	Nil	Weather—clear and cold; very seasonable with west winds. *Rubbi* prospects excellent. Poppy rather backward, but fair. Sugarcane pressing going on.
32	Chumparun „ 1, '90	Nil	Weather—cold, with passing clouds. Rainfall of the past week has been decidedly beneficial to all crops, and has caused no damage to wheat according to latest reports. Early poppy plants coming into flower. Prices stationary.
33	Monghyr „ 1, '90	Nil	Weather—cool and cloudy at times. *Rubbi* crops doing well, but want rain, especially in the Begusarai subdivision, where the standing crops on high lands do not look very promising, and mustard has been damaged by *lahi* insects. Poppy flowering.
Bhagulpore Divn. 34	Bhagulpur „ 1, '90	Nil	Weather—cool with west winds. Prospects of crops promising, but rain wanted for wheat. Mustard harvested; yield about 12 annas. Linseed flowering and weather favourable.
35	Purneah „ 1, '90	Nil	Weather—cold. Mustard still being harvested with good outturn. Tobacco and other *rubbi* crops have benefited, especially in Kissengunge, from recent rain. Tobacco a good crop. Ploughing going on.
	Kissengunge (on 24th Jan.)	1·30	
	Arrarcah (ditto)	0·14	
36	Maldah Feb. 1, '90	Nil	Weather—somewhat colder. Gathering of *kalai* and mustard continues; in thana Kharba it is just over. Other *rubbi* crops (wheat, barley, gram, &c.) doing well, but require rain. Transplantation of *boro* paddy going on. Common rice selling at an average of 17 seers per rupee
37	Sonthal Pergha. „ 1, '90	Nil	Weather—very cold and dry; warm in the day time. *Rubbi* crops doing well. Mustard is a short crop in Pakour, estimated at 8 annas. Mungoes are in blossom.

No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
ORISSA.			
Orissa Divn. 38	Cuttack Feb. 1, '90	Nil	Weather—seasonable. Estimated outturn of *guru sarad* is as follows :— Jajpore ... ... 17 annas. Kendrapara ... ... 12 „ Sudder ... ... 13 „ On the whole a 14-anna crop has been reaped over the whole district.
Orissa Divn. 39	Pooree ...	...	Report not received.
Orissa Divn. 40	Balasore „ 1, '90	Nil	Weather—unusually cold. Outturn of *guru* rice estimated at 14 annas in the Bhuddruck subdivision and 11 annas in the Sudder subdivision. Outturn of *rubbi* crops averages generally about 12 annas.
CHOTA NAGPORE. *South-West Frontier Agency.*			
Chota Nagpore Divn. 41	Hazaribagh Feb. 1, '90	Nil	Weather—seasonable. Crops in good condition everywhere.
Chota Nagpore Divn. 42	Lohardugga „ 1, '90	Nil	Weather—seasonable; mornings very chilly. Prospects of *rubbi* crops good at head-quarters. In Palamow they are somewhat affected by want of rain.
Chota Nagpore Divn. 43	Singbhoom „ 1, '90	Nil	Weather—seasonable. Prospects of winter crops favourable. Prices stationary.
Chota Nagpore Divn. 44	Manbhoom „ 1,, '90	0·06	Weather—cold. Mustard fully harvested, with 16 annas outturn. Sugarcane being pressed; outturn about 10 to 12 annas. *Rubbi* crops doing well; probable outturn 14 annas. Price of rice falling.

Published for general information.

CALCUTTA; REVENUE DEPT.,
The 4th February, 1890.

P. NOLAN,
Secy. to the Govt. of Bengal.

Results of the Meteorological Observations taken at the Alipore Observatory from 26th January to 1st February 1890.

Month.	Date.	Maximum in sun.	Number of hours of bright sunshine.	Mean pressure barometer at 32° Fahr.	Temperature.				Hygrometry.				Wind.		Rain.	Weather.
					Mean.	Maximum.	Range.	Minimum.	Mean wet bulb.	Vapour tension.	Dew point.	Humidity.	Prevailing direction.	Miles recorded.		
1890.		°		Inches.	°	°	°	°	°	Inches	°	%			Inches.	
Jan.	26th	129·5	9·6	29·931	63·9	71·6	16·4	55·2	57·2	0·384	51·6	66	NNW and NNE ..	75	Nil	Clear, D.
,,	27th	130·4	9·3	·932	60·5	71·3	20·9	50·4	52·9	·304	45·4	60	N by E, WNW and calm	47	,,	Clear, D.
,,	28th	131·7	9·6	·976	60·1	73·4	25·8	47·6	52·9	308	45·7	63	NNW and calm ...	42	,,	Chiefly clear D.
,,	29th	132·3	9·4	30·041	61·9	73·3	22·9	50·4	52·7	·277	42·9	53	NNE and NNW ...	119	,,	Clear, D.
,,	30th	131·0	9·5	·011	63·8	75·8	23·2	52·6	55·9	·346	48·8	60	N and NNE ...	81	,,	Clear.
,,	31st	130·2	9·6	·042	64·2	76·2	22·7	53·5	57·0	·370	50·6	69	NNE and N ..	61	,,	Clear, D.
Feb.	1st	132·6	9·4	·068	64·1	76·7	24·7	52·0	55·9	338	48·2	60	NNE and N by W .	53	,,	Clear, D.

		Inches.
The mean pressure of the seven days		30·000
The average pressure of the corresponding period for 24 years, S.-G.'s Office ...		29·994
		Hours.
The total number of hours of bright sunshine		66·4
The maximum possible number of hours of sunshine		77·4
		°
The mean temperature of the seven days		62·6
The average temperature of the corresponding period for 24 years, S.-G.'s Office		68·8
The extreme variation of temperature		29·1
The maximum temperature		76·7
		Miles.
The highest velocity of the wind in one hour		10
		lbs.
The highest pressure of wind on one square foot		Not measurable.
		%
The mean relative humidity		62
The average relative humidity of the corresponding period for 24 years, S.-G.'s Office		71
		Inches.
The total fall of rain from 26th January to 1st February 1890		Nil
The average fall of the corresponding period for 24 years, S.-G.'s Office ...		0·26
The total fall from 1st January to 1st February 1890		0·77
The average fall of the corresponding period for 24 years, S.-G.'s Office ...		0·45

The mean pressure, temperature, &c., are deduced from the traces of the Barograph and Thermograph.

The maximum and minimum temperatures are obtained from self-registering thermometers. All the thermometers are verified, and the readings have been corrected to a standard constructed and verified at the Kew Observatory. They are exposed under a thatched shed open at the sides, and are suspended four feet above the ground.

The barometer readings are corrected approximately to those of the standard, Newman's No. 86, formerly at the Surveyor-General's Office.

The hygrometric elements are obtained from Tables III, IV, and V of the official tables computed in the Meteorological Office, and based on Regnault's modifications of August's formula.

The directions and the movement of the wind are taken from the trace of a Beckley's anemograph.

The mouth of the rain-gauge is one foot above the ground.

D. dew.

C. Little,

For Meteorological Reporter to the Govt. of India.

Meteorological Office, Govt. of India;

Calcutta, the 3rd February 1890.

Meteorological Report of the Province of Bengal

District.	Representative station.	STATION OBSERVATIONS.														
		Air pressure.			Wind.		Temperature.									
		Mean barometric height, 8 A.M.	Mean reduced to sea-level.	Variation from mean.	Prevailing direction.	Mean wind velocity.	Highest during week.	Date.	Lowest during week.	Date.	Mean maximum temperature.	Mean minimum temperature of week.	Mean daily temperature of week.	Variation from normal mean of week.	Mean, 8 A.M., temperature.
Pooree	Pooree ...	30·002	30·015	—	N	204	84·7	25th Jan.	53·0	28th, 30th Jan.	80·8	66·0	68·9	—	61·9
	Gopalpore	29·992	30·019	+·010	NNW	305	84·2	26th ,,	55·0	31st ,,	79·8	66·7	70 3	−1·6	66·0
	False Point ...	30 006	30·028	−·043	NW	202	83·9	25th ,,	50 0	27th, 28th Jan.	76 6	54·1	65·4	−4·7	59·2
Cuttack	Cuttack ...	29·959	30 045	−·009	NW	31	88·4	25 h ,,	50·0	28th, 30th Jan.	82·2	55·5	68·8	−4·3	59 8
Balasore	Balasore ,,	29·987	30 049	−·016	NNW	124·7*	86·4	25th ,,	46·9	28th ,,	79·2	51·7	65·5	−3·0	57·3*
South-West Midnapore / South 24-Pergunnahs	Saugor Island	30 003	30 080	−·024	N & NNE	285	81 7	25th ,,	51·7	28th, 29th Jan.	75·1	56·7	65 9	−3·4	60 7
Midnapore	Midnapore ,,	29 883	30·043	−·035	N	33·3	87·3	25th ,,	46·1	28th ,,	79·4	51·3	65·4	−2·3	58·3
24-Pergunnahs ... ... / Howrah ... ... / Hooghly	Calcutta	30·008	30 031	−·015	Northerly	89 0	81 5	25th ,,	47·8	28th ,,	74·7	53·2	64·0	−3·3	58·1
Burdwan	Burdwan	29 931	30 038	− 032	North-westerly.	56·1	85·0	25th to 28th Jan.	46·7	28th ,,	81·3	51·8	66·6	−0·7	57·1
Bankoora ...	Bankoora ,,	2·°701	30·026	− ·034	Westerly	65	86·0	25th ,,	46·2	27th ,,	77·3	50·8	64 1	−2 7	55·2
Beerbhoom ... ... / West Burdwan	Ranneegunge	29·701	30·056	−·019	NW	84·9	85·5	25th ,,	46·7	29th ,,	78·1	50·5	64·4	−2·3	56·2
Moorshedabad	Berhampore..	29·955	30·027	− 038	NW	65·2	81·6	25th ,,	47·1	28th ,,	75·7	50·6	63·1	−2·5	53·9
Nuddea	Krishnaghur ..	29·984	30·054	−·037	WNW	92·5	84·5	25th ,,	45·8	27th, 29th Jan.	77·2	49·3	63·2	−2·0	56·5
Jessore ... ... / Khoolna	Jessore .	29·982	30 018	- ·038	NNW	48·8	81·2	25th ,,	43·4	29th ,,	76 0	54·0	65·0	−1·4	56·5
Chittagong	Chittagong ,,	29 905	30·0·0	- ·060	Calm	48·8	80·6	25th ,,	50 2	28th ,,	75 9	55·3	66 1	−0 8	60·3
Chittagong Hill Tracts	Demagiri	Observations not received.													
Backergunge	Barrisal .	29·932	30·005	−·036	North-westerly.	55·0	79·3	25th Jan.	48·1	28th ,,	74·4	53 9	64·2	−0 7	60·9
Noakholly	Noakholly ..	29·954	30·000	—	N	89·8	79·0	26th, 31st Jan.	46·0	28th ,,	77·3	51·3	64·3	—	59·9
Furreedpore	Furreedpore..	29 978	30 029	− 025	N	57·0	73 5	31st ,,	49·0	28th, 29th Jan.	72·2	53·4	62·8	−1·5	57·5
Dacca	Dacca ,,	29 970	29 994	−·057	NNW	86·8	80·6	25th ,,	48·2	28th ,,	76·0	53 1	64 6	−2·2	58·8
Tipperah	Commillah	29·°70	30 007	−·035	NE	51·0	78·9	25th ,,	48·1	28th, 30th Jan.	75·0†	52·7	64·2†	−1·0	58 7
Mymensingh	Mymensingh	29·947	30·0·9	−·037	Variable	42 8	77 4	31st ,,	48 8	30th ,,	73·5*	51·7	63·0*	−0 7	55·9
Bogra	Bogra	29·922	29·°60	−·035	North-westerly.	43·4	77·5	31st ,,	45·5	28th ,,	73·4	50·3	61·9	−3·5	54·6
Pubna	Serajgunge .	29·953	30·002	− 045	SW	51 2	79·0	25th ,,	45·0	28th ,,	75·0	50·0†	62·2†	−1·4	55·5
Rajshahye	Rampore Boaleah.	29 916	30 020	− 017	N	117·3	79·1	25th ,,	44·9	27th ,,	74·8	49 6	62·2	−0·6	55 0
Maldah	Maldah ...	29·943	30·030	—	NW	85·4	76·7	31st ,,	42·9	27th, 28th Jan.	74·4	47·1	60·7	—	56·4
Dinagepore	Dinagepore	29 897	30·027	−·035	SW	54·0	77·1	31st ,,	43·9	28th ,,	73 2	47·4	60 3	−2·6	53·4
Rungpore	Rungpore	29 896	30 031	−·007	ENE	21·0	77 6	31st ,,	41·2	27th ,,	72·7	47·3	60·0	−1·4	53·2
Julpigoree ... .. / Cooch Behar	Julpigoree ...	2 ·713	30 021	−·017	Northerly	89·5	?	?	41·0	28th ,,	?	46·0	?	?	53·0
Darjeeling Hill Tracts ...	Darjeeling	22·844	—	—	WSW	144·7	53·3	25th to 31st Jan.	29·1	28th ,,	53·3	32·7	43·0	+4·0	36 2
Purneah .. .. / North Bhagulpore ...	Purneah ..	29·900	30·037	−·026	Calm & westerly.	58·5	76·4	27th ,,	40·5	28th ,,	72 7	44·4	58·5	−2·7	49 8
Mozufferpore	Mozufferpore	Observations suspended.													
Durbhunga	Durbhunga ,,	29·867	30 047	−·029	W	82	75·4	25th, 31st Jan.	45·8	27th ,,	73·2	49·0	61·1	−1·2	54·0
Dhumparun .	Motihari ,,	29·790	30·042	−·014	Variable	126·0	75·7	25th ,,	41·0	28th ,,	72·1	45·3	58·7	−1·1	51·3
Sarun ...	Chupra ..														
Shahabad	Dehree ..	29·698	30·081	−·002	SSW	179·4	77·8	25th ,,	44·0	28th ,,	74·4	48·1	61·3	−0·4	52·6
	Buxar ..	29·808	30·071	−·001	W	118 6	78 9	25th ,,	41·0	28th ,,	74·1	45·5	59·8	−2·2	52·3
	Arrah ..	29 840	30·052	−·002	WSW	91·1	78·6	25th ,,	41·9	29th ,,	73 7	44·9	59·3	−1·6	50·6
Gya	Gya ..	29 904	30·069	−·025	W & S	140·3	76·1	25th ,,	47·9	29th ,,	73·9	51·0	62·5	−2·0	53 3
Patna .. .	Bankipore ..	29 858	30·050	−·028	W	67·4	76·7	25th ,,	45·3	29th ,,	72·9	47·0	59·9	−1·7	54·0
South Bhagulpore / Monghyr . ..	Bhagulpore ...	29·856	30·030	−·027	Calm	21	76·3	31st ,,	39·2	28th ,,	73·9	40·9	60·4	−1·9	52·7
Sonthal Pergunnah ...	Doomka ..	29·607	30·°43	—	NW	71·4	80·3	25th ,,	42·4	29th ,,	75·0	47·4	61·2	—	53·7
Hazaribagh	Hazaribagh	27 951	30 0·7	−·031	North-westerly.	238·4	76 4	25th ,,	42·9	27th ,,	70 9	46·4	58 6	−3·6	52·8
Lohardugga ... ... / Manbhoom	Ranchee ..	2·°825	30 0·6	−·029	Calm	122·7	77·3	25th ,,	37·9	27th ,,	70·8	44·6	57·7	−4·3	52·6
Singbhoom	Chyebassa ..	29·261	30·067	—	South-westerly.	29·1	85·0	25th ,,	44·0	28th ,,	75·3	48·1	63·2	—	58·0†

* Means of six days. † Means of five days.

...nation.—Summary.—The normal means of air pressure and temperature are the arithmetical average or means of the reading during the same period for the last ...6 *humidity* of the atmosphere is expressed as percentage, saturated air being presented by 100. A clear sky is denoted by 0 and an overcast sky by 10., The number ...s numerical means or average of the rainfall in that district determined from the returns sent in by the subdivisional station for the period in question during the past ...s in the district sending in returns divided by the number of stations. A rainy day is one on which at least hundredth of an inch fell,

the week ending Friday, the 31st of January 1890.

at 9 A.M.	Average cloud amount at 8 A.M. for week.	Rainfall of week at observing station.	OF WEEK. Mean for district.	OF WEEK. Normal mean.	DISTRICT OBSERVATIONS. RAINFALL. Since 1st of month. Mean for district.	Since 1st of month. Normal mean.	Since 1st of month. Variation.	Since 15 h May 1889. Mean for district.	Since 15 h May 1889. Normal mean.	Since 15 h May 1889. Variation.	Average number of rainy days.	Normal number of rainy days.	Representative station.	District.	Meteorological Divisions.
73	1·3	0·10	0·06	0·17	0·16	0·31	−0·25	74·94	55·48	+19·46	0·5	0·4	Pooree ...	Pooree	Orissa.
62	0·1	Nil											Gopalpore ...		
79	1·7	0·15											False Point ...		
63	1·6	Nil	0·15	0·20	0·15	0·36	−0·21	66·39	51·91	+14·48	0·4	0·4	Cuttack ...	Cuttack	
67*	0	Nil	0·07	0·25	0·07	0·44	−0·37	49·96	53·04	−3·08	0·2	0·4	Balasore ...	Balasore	
81	1·3	Nil	0·14	0·20	0·14	0·43	−0·29	58·57	62·44	−3·87	0·7	0·4	Saugor Island ...	South-West Midnapore South 24-Pergunnahs	South-West Bengal.
59	0·3	Nil	0·10	0·18	0·10	0·49	−0·39	40·39	5·. 56	−5·17	0·7	0·5	Midnapore ..	Midnapore	
75	0·9	0·77	0·72	0·18	0·72	0 50	+0·22	54·10	51 68	+2·42	1·0	0·5	Calcutta ...	24-Pergunnahs ... ... Howrah ... ... Hooghly	
58	0·3	0·06	0·02	0·17	0·06	0·38	−0 32	43·89	46·69	−2·80	0·3	0·5	Burdwan ...	Burdwan	
63	0	0·06	0·02	0·20	0 05	0·40	−0·35	55·03	52·69	+3·24	0·2	0·4	Bankoora ...	Bankoora	
58	0	0·02	0·01	0·12	0·02	0·44	−0·42	52 46	51·02	+0·84	0·2	0·4	Ranegunge ...	Beerbhoom ... ... West Burdwan	
84	0	Nil	Nil	0·07	0·02	0·44	−0·42	51·17	50·46	+0·71	0·0	0·4	Berhampore ..	Moorshedabad ..	
76	1·4	Nil	0·06	0·14	0·12	0·34	−0·22	51 61	49 23	+2·38	0·2	0·4	Krishnaghur ...	Nuddea	
90	1·6	1·55	1·21	0 18	1·36	0·50	+0·86	54·75	53 17	+1·58	1·0	0·5	Jessore ...	Jessore ... ... Khoolna	
83	1·3	0·76	0 33	0·23	0·55	0·89	−0·33	109 35	113·71	−13·36	0·5	0·5	Chittagong ...	Chittagong	East Bengal.
			Nil	0 23	0·04	0 65	- 0 61	65·17	81·28	−16·11	0·0	0 5	Demagiri ...	Chittagong Hill Tracts	
84	1·1	3 01	0·35	0·22	0·49	0·67	· 0·18	78·31	76·99	+1·32	0·8	0·5	Barrisal ..	Backergunge	
85	0·4	0·15	0·17	0·16	0·53	0 72	−0·19	90·82	106 55	−15 73	1·5	0·6	Noakholly ..	Noakholly	
90	1·4	0·21	0·45	0·17	1·99	0 42	+1 80	62·22	55·83	6·39	0·7	0·5	Furreedpore ...	Furreedpore	
79	1·3	1·10	0·93	0·18	1·37	0·41	+0·96	75·96	59·64	+16·32	1·0	0 5	Dacca ...	Dacca	
86	1·0	0·39	0·58	0 22	1·17	0·67	+0·50	56·02	69 49	−12·87	1·0	0·6	Commillah .	Tipperah	
89	1·9	0·24	0·04	0·1.	1 15	0·38	+0·77	88·78	67·59	+21 19	1 0	0 4	Mymensingh .	Mymensingh	
81	0	0·63	0·39	0·09	0·81	0·36	+0 45	65 02	57·29	+8·31	1·0	0·3	Bogra ...	Bogra	North Bengal.
56	1·4	0 17	0·09	0·13	0 30	0·41	−0·11	55·37	53 33	+2·04	0·5	0 4	Serajgunge .	Pubna	
76	0·1	Nil	Nil	0·18	0 05	0·60	−0·55	54·35	53·92	+0 43	0·0	0 4	Rampore Beauleah	Rajshahye	
73	0	Nil	Nil	0·12	Nil	0·48	−0 48	39·76	54 23	−14 47	0·0	0·5	Maldah ...	Maldah	
82	0·3	0·30	0·12	0·27	0·12	0·56	−0·44	57·49	57 16	+0·33	0·4	0·4	Dinagepore ...	Dinagepore	
86	0	0·10	0·21	0·19	0·71	0·50	+0 21	85 87	74 22	+11·65	0·5	0·5	Rungpore ...	Rungpore	
90†	0	Nil	0·04	0·30	0·00	0·54	+0·06	117·73	111·74	+5 99	0·4	0·5	Julpigoree ..	Julpigoree ... ... Cooch Behar	
78	5·3	0·70	0 19	0·46	0·71	0·99	−0·28	133·46	121·27	+12 19	1·0	1·0	Darjeeling ..	Darjeeling Hill Tracts	
85	0	0·02	Nil	0·15	0·29	0·49	−0·20	75·00	58·63	+16·37	0·0	0·4	Purneah ..	Purneah ... ... North Bhagulpore	North Behar.
			0·06	0·25	0·17	0·67	−0·50	48·83	43 28	+5 55	1·0	0·4	Mozufferpore ...	Mozufferpore	
73	1·4	0·23	0·13	0·22	0·27	0·64	−0·37	52·11	44 68	+7 43	1·0	0·4	Durbhunga ...	Durbhunga	
81	0	0 45	0·03	0·28	0·41	0·68	−0·27	63·96	46·81	+17 15	0 5	0·5	Motihari ..	Chumparun	
			Nil	0·36	Nil	0·76	−0·76	40·13	42·97	−2 84	0 0	0 5	Chupra ...	Sarun	
36	0	Nil											Dehree ...		
59	0·7	Nil	Nil	0·13	Nil	0·07	−0·67	40·07	40·27	−0·20	0·0	0·5	Buxar ...	Shahabad	
54	0·9	Nil											Arrah ..		
83	0	Nil	Nil	0 22	Nil	0·09	−0·69	37·07	41 58	−4·51	0·0	0·5	Gya ...	Gya	South Behar.
59	0·9	Nil	Nil	0·18	Nil	0·58	−0·58	43·49	41 36	+2·13	0·0	0·5	Bankipore ...	Patna	
69	0	Nil	Nil	0·19	Nil	0·56	- 0 56	42·43	43·64	−1·21	0·0	0·5	Bhagulpore ...	South Bhagulpore ... Monghyr	
63	0	Nil	Nil	0 07	Nil	0·37	−0·37	54·15	50·71	+3·44	0·0	0·4	Doomka ...	Sonthal Pergunnahs...	
46	0	Nil	Nil	0·18	Nil	0·03	−0·03	47·03	50·74	−7·71	0·0	0·4	Hazaribagh ...	Hazaribagh	Chutia Nagpur.
48	0	0·01	Nil	0 20	Nil	0·80	−0·80	44·84	49·44	−5·10	0·0	0·4	Ranchi ...	Lohardugga	
			0·03	0·17	0·03	0·49	−0·46	58·36	46·94	−8·58	0·5	0·4		Manbhoom	
50	0·6	Nil	Nil	0·29	Nil	0·72	- 0·72	48·76	51·50	−2·74	0·0	0·6	Chyebassa ...	Singbhoom	

n years. The variations are *negative* when the mean for the week is less than the corresponding normal mean, and *positive* when greater.
noting cloud amount represents the part of the sky covered, the whole sky being denoted by 10. Under the head District observations of rainfall the normal means
years. The means of the district are the numerical average of the rainfall return received in the district, *i.e.*, from total rainfall at the subdivisional

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 31st of January 1890.

Meteorological division.	District.	Station.	Rainfall.							Total		Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	Aver rain from May dat
			Saturday, 25th January.	Sunday, 26th January.	Monday, 27th January.	Tuesday, 28th January.	Wednesday, 29th January.	Thursday, 30th January.	Friday, 31st January.	Number of rainy days.	Rainfall of week.				
Orissa ...	Pooree ...	Pooree ...	0·08	.....	.....	.....	.....	.....	.....	1	0·08	0·08	0·24	80·71	51
		Khurdah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	76·57	50
		Banpur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·09	65·30	40
		False Point ...	0·15	.....	.....	.....	.....	.....	.....	1	0·15	0·20	0·63	77·09	63
		Gop ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil		?		
		Pipli ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil		?		
	Cuttack ...	Jagatsingpore	0·52	.....	.....	.....	.....	.....	.....	1	0·52	0·52	0·35	74·49	47
		Banki ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·24	52·43	40
		Cuttack ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·33	76·18	50
		Kendrapara ...	0·21	.....	.....	.....	.....	.....	.....	1	0·21	0·21	0·44	72·24	53
		Jajpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·43	57·04	53
		Dharmsala ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	50·25	
		Salipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	72·47	
	Balasore ...	Chandbali ...	0·40	.....	.....	.....	.....	.....	.....	1	0·40	0·40	0·51	55·04	52
		Bhuddruck ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	57·06	51
		Sorah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	46·05	51
		Balasore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	49·61	57
		Jellasore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·73	39·59	53
		Baripodah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·27	54·79	53
South-West Bengal.	Midnapore ...	Contai ...	0·05	.....	.....	.....	.....	.....	.....	1	0·05	0·05	0·29	53·18	61
		Sangor Island ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·37	56·74	67
		Tumlook ...	0·20	.....	.....	.....	.....	.....	.....	1	0·20	0·20	0·39	49·60	51
		Midnapore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·59	46·26	48
		Ghattal ...	0·11	.....	.....	.....	.....	.....	.....	1	0·11	0·11	0·50	43·30	54
		Kulrahaty ...	0·19	.....	.....	.....	.....	.....	.....	1	0·19	0·19	?	59·84	
		Bhagwanpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·72	
		Garbetta ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	46·29	
	24-Pergunnahs	Diamond Harbour ...	0·38	.....	.....	.....	.....	.....	.....	1	0·38	0·38	0·65	63·79	58
		Canning Town	0·05	.....	.....	.....	.....	.....	.....	1	0·05	0·05	?	57·85	
		Alipore Jail ...	1·07	.....	.....	.....	.....	.....	.....	1	1·07	1·07	0·68	52·87	55
		Barrackpore ...	0·33	.....	.....	.....	.....	.....	.....	1	0·33	0·53	0·46	52·12	49
		Dum-Dum ...	0·85	.....	.....	.....	.....	.....	.....	1	0·85	0·85	0·58	65·43	51
		Baraset ...	1·10	.....	.....	.....	.....	.....	.....	1	1·10	1·10	0·61	58·71	49
		Basseerhat ...	1·49	.....	.....	.....	.....	.....	.....	1	1·49	1·49	0·43	62·41	54
	Howrah ...	Howrah ...	0·52	.....	.....	.....	.....	.....	.....	1	0·52	0·52	0·58	59·64	51
		Mohosreka ... (*Ooloberiah.*)	0·40	.....	.....	.....	.....	.....	.....	1	0·40	0·40	0·50	55·04	52
	Hooghly ...	Serampore ...	0·36	.....	.....	.....	.....	.....	.....	1	0·36	0·36	0·43	55·03	50
		Hooghly ...	0·61	.....	.....	.....	.....	.....	.....	1	0·61	0·61	0·38	57·53	48
		Jehanabad ...	0·45	.....	.....	.....	.....	.....	.....	1	0·45	0·45	0·39	41·61	55
	Burdwan ...	Culna ...	.....	.....	.....	.....	.....	.....	.....	Nil.	Nil	Nil	0·39	41·32	44
		Burdwan ...	0·06	.....	.....	.....	.....	.....	.....	1	0·06	0·18	0·30	47·25	47
		Cutwa ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·44	43·11	47
		Ranegunge ...	0·02	.....	.....	.....	.....	.....	.....	1	0·02	0·07	0·38	55·90	49
		Mankur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·00	?	53·80	
	Bankoora ...	Bankoora ...	0·07	.....	.....	.....	.....	.....	.....	1	0·07	0·07	0·34	50·36	51
		Bishenpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·38	57·49	51
		Mahara ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·11	0·35		51
		Khatra ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	65·91	54
		Indas ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·14	
		Kotalpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	48·40	
		Auda ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	40·44	
		Gangajalghati ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	50·17	
		Raipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	58·35	
		Sonamukhi ...	0·11	.....	.....	.....	.....	.....	.....	1	0·11	0·11	?	54·44	
	Beerbhoom ...	Bh. Soory ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·44	59·06	51
		Hetampore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·50	47·07	54
		Rampore Haut ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·53	47·78	51
		Bolpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·07	?	55·04	
		Murarai ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	53·10	
	Nuddea ...	Ranaghat ...	0·30	.....	.....	.....	.....	.....	.....	1	0·30	0·30	0·45	56·10	47
		Kishnaghur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	42·95	46
		Chooadanga ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·05	0·30	40·86	50
		Meherpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·10	0·29	53·15	47
		Koositea ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·15	0·36	56·06	54
	Khoolna ...	Satkhira ...	2·03	.....	.....	.....	.....	.....	.....	1	2·03	2·03	0·40	54·54	55
		Bagerhat ...	0·98	.....	.....	.....	.....	.....	.....	1	0·98	1·48	0·69	55·48	61
		Khoolna ...	0·79	.....	.....	.....	.....	.....	.....	1	0·79	1·04	0·63	56·88	54
		Nakipur ...											?		
		Rampal ...	0·37	.....	.....	.....	.....	.....	.....	1	0·37	0·37	?	?	
	Jessore ...	Narail ...	2·51	.....	.....	.....	.....	.....	.....	1	2·51	2·54	0·63	52·01	45
		Jessore ...	1·55	.....	.....	.....	.....	.....	.....	1	1·55	1·55	0·60	63·90	54
		Jhenidah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·18	0·36	50·74	53
		Mugoorah ...	0·17	.....	.....	.....	.....	.....	.....	1	0·17	0·42	0·29	56·90	49
		Bongong ...	1·63	.....	.....	.....	.....	.....	.....	1	1·63	1·63	0·34	47·64	51
	Moorshedabad ...	Kandi ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·38	55·38	51
		Berhampore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·12	0·69	46·28	51
		Lalbagh ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·20	47·13	50
		Azimgunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·55	?	51
		Jungipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·45	55·01	49
		Lalgola ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·55	59·02	50
		Jiagunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·04	?	43·20	?
		Akhriguni ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·25	?	43·06	?
		Patkabari ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·10	?	?	?
East Bengal	Chittagong ...	Cox's Bazar ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·77	123·89	135
		Chittagong ...	.....	0·66	.....	.....	.....	.....	.....	1	0·66	0·66	0·62	77·08	94
		Kutubdia ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	113·09	?
		Sarkanya ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	63·06	?
	Chittagong Hill Tracts.	Rangamati ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·08	0·60	63·12	63
		Rama ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·08	67·20	80
	Backergunge ...	Patuakhally ...	0·46	.....	.....	.....	.....	.....	.....	1	0·46	0·46	0·67	67·66	67
		Perozepore ...	0·43	.....	.....	.....	.....	.....	.....	1	0·43	0·48	0·69	72·64	70
		Burrisal ...	0·50	.....	.....	.....	.....	.....	.....	1	0·50	0·59	0·78	73·21	67
		Bhola ...	0·41	.....	.....	.....	.....	.....	.....	1	0·41	0·42	0·56	79·03	82

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 31st of January 1890—contd.

Meteorological Division.	District.	Station.	Rainfall: Saturday, 25th January 1890.	Sunday, 26th January.	Monday, 27th January.	Tuesday, 28th January.	Wednesday, 29th January.	Thursday, 30th January.	Friday, 31st January.	Total: Number of rainy days.	Total: Rainfall of week.	Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	Average rainfall from 15th May to date.
ST BENGAL—*concld.*		*Gournadi*	.....	.....	.. .	.....	.....	.....	.....	Nil	Nil	Nil	?	61 31	?
		Bauphal	0·23	.....	.....	.....	.. ...	. ...	.....	1	0·23	0·23	?	93·12	?
	Noakholly ...	Noakholly	0·12	0·02	. ....	.....	...	.....	.....	2	0·14	0·41	0·61	102·58	107·80
		Feuny	0·20	.. ...	.....	.....	. ....	.....	.....	1	0·20	0·65	0·81	79·03	106 72
		Harishpore ...	0·36	. ...	...	. .	.	.. ..	...	1	0·36	0·36	?	83·32	?
		Ramganj	....	.....	.....	.. ...	.....	...	.. ..	Nil	Nil	Nil	?	86·75	?
	Furreedpore	Madaripore	1·13	.....	.. .	.....	.. ...	.....	.. ...	1	1·13	2·12	0·61	62·98	55·35
		Furreedpore..	.....	.....	...	.....	.....	.....	.....	Nil	Nil	1·80	0·34	65·60	56·26
		Goalundo	0·21	.....	.....	.....	.....	.....	.....	1	0·21	1·76	0·98	58·05	52·94
	Dacca ...	Munchirunge	0·58	.....	.....	.....	... ..	.....	.. ..	1	0·58	1·18	0·52	77·51	70·08
		Dacca	2·54	.....	.. ...	.....	.....	.....	.....	1	2·54	2·76	0 34	76·45	58·38
		Narainunge	0·34	. ...	.. ...	... ..	.....	.....	... .	1	0·34	0·78	0·33	81·14	59·78
		Manickgunge	1·17	.....	. ...	...	.....	... ..	... ..	1	1·17	1·68	0·43	69·67	59·00
		Joydebpore	0 78	.....	... ..	.....	.....	.....	.....	1	0·78	1·94	?	68·55	?
	Hill Tipperah	Agartola ..	0·12	.....	.....	.....	... ..	.....	... ..	1	0·12	0·30	0·64	44·38	61·51
	Tipperah ...	Comilla ..	0·35	....	. ...	...	... ..	.....	. ...	1	0·35	0·80	0·68	62·97	76·11
		Chandpore .	0·60	.....	. ...	... .	. .	.....	.. ..	1	0·60	1·15	0·54	65·97	75·79
		Brahmunberia	1·25	.. ..	. ...	.. .	. .	.....	.....	1	1·25	2·44	0·79	53·12	61·71
		Ramchandra-pore.	0 39	.. ..	.....	..	...	.....	.....	1	0·39	0·08	?	60·84	?
		Nasirnagar ...	1·50	.. ..	.. ..	.. .	.....	... ..	.. ..	1	1·50	1·80	?	32·30	?
		Daudkandi	0 72	.. .	.. ..	... ..	.....	... ..	... .	1	0·72	1·44	?	53·74	?
		Kasba ..	.....	.. .	.....	... ..	. .	..	.. ..	Nil	Nil	Nil	?	62·44	?
		Laksham ..	0 09	.....	.. ..	.....	. .	.....	.....	1	0·09	0·39	?	60·18	?
	Mymensingh.	Kishoregunge	1·24	.. .	. ...	.. .	..	...	.	1	1·24	1·21	0·59	70·80	70·12
		Atia (*Tangail*	0·85		.. ..	.. ..	. .	. ...	...	1	0 85	1·19	0 45	62·09	55·1
		Mymensingh	0·22		. ..	.. ..	. .			1	0·22	1·38	0·35	97·03	73·98
		Jamalpore	0·53		. .	. .	. .			1	0·53	0·87	0·43	86·01	68·16
		Netrokona	0 35	. .	.. ..	. .	. ...			1	0 35	0·5	0·13	126·47	78·74
		Subornakhali	....	.....	.. ..	.. .	.....	.. ..	.. ..	Nil	Nil	Nil	?	57·43	?
		Durgapore ...	. . .	....	..	.	.	...	.. ..	Nil	Nil	0·30	?	150·28	?
		ShereporeTown	0·44		....	.	.. ..	.. .	.. ..	1	0·44	1·08	?	88·17	?
		Dewanganj	.. ..	.	.. .		.	.. ..	.. .	Nil	Nil	0·77	?	57·08	?
NORTH BENGAL	Pubna ..	Pubna ..	.....	. .	. .	. .	.	...	.....	Nil	Nil	0·35	0·35	50·20	53·64
		Serajgunge ..	0 17	...	.. .	...	.	.....	.....	1	0·17	0·25	0 46	60·51	52·83
	Bogra ...	Sherepore .	0·01	. .	.. ..	. ...	... .	... .	.. ..	1	0·01	0·01	0·14	62·67	57·12
		Nowkhilla ..	0 34	... .	. .	. .	. .	. .	.....	1	0·34	1·48	0 35	62·44	54·20
		Bogra	0·50	.....	.. .	.	.	.	.. ..	1	0·50	0·70	0·43	71·33	60·50
		Panchbibi	0·70	..	....	... ..	.....	.....	.....	1	0·70	1·02	0·32	65·98	55·72
	Rajshahye ...	Beauleah	..	. .	. ....	. .	...	.....	.....	Nil	Nil	0·14	0·39	40·34	52·91
		Nattore	.....	.	.	. .	. ....	.....	.....	Nil	Nil	Nil	0·61	58·84	54·92
		Naogaon	.....			.	.....	.. .	.. .	Nil	Nil	Nil	0·78	57·87	51 42
		Lalpore ...	..	.....	.. .	. .	. .	.. .	.....	Nil	Nil	Nil	?	36·72	?
		Manda	.....	....	.. .		... ..	.....	.....	Nil	Nil	Nil	?	45·27	?
	Maldah ..	Maldah	.....	...	... ...	...	....	. .	... ..	Nil	Nil	Nil	0·43	50·53	51·72
		Chanchal ..	...	... .	....	. .	....	.....	....	Nil	Nil	Nil	0·51	28·96	56·71
		Gajol ...	.....	..	.. ..	. .	....	.....	.....	Nil	Nil	Nil	?	30·79	?
		Sibganj ..	.....	... ..	.. .	.. .	.	....	.....	Nil	Nil	Nil	?	51·77	?
	Dinagepore .	Mohadelpore	.....	. ..	. ...	...	.....	. ..	.....	Nil	Nil	Nil	0·57	53·63	56 39
		Churamon ..	.....	.....	... ..	.. ...	..	.. ..	.. .	Nil	Nil	Nil	0·66	51·82	53 58
		Raigunge .	0·12	.	....	..	.....	....	....	1	0 12	0·12	0·77	52·37	57·83
		Dinagepore ..	0·49	....	. ...	..	..	....	.....	1	0 49	0 49	0 40	68·33	63 82
		Balcorehat	.....	.....	.. ...	.. ...	...	.....	.....	Nil	Nil	0·01	0·62	61·29	51 52
		Thakoorgaon	.....	.. ..	.. ..	.. .	. .	.....	.. ..	Nil	Nil	0·34	?	87·81	?
	Rungpore ..	Bhawaniguuge (*Gyabanda*)	0·64	.. .	.. ..	.. ..	.. ..	.....	.....	1	0·64	0·84	0·37	88·39	61·96
		Rungpore ..	0·20	. ..	..	.....	.. ..	...	.....	1	0·20	0·57	0 59	74·98	74·55
		Kurigram ..	.....	.....	.....	....	....	....	. ..	Nil	Nil	0·65	0 51	91 03	73·34
		Bagdogra (*Nilphamari*).	.....	.....	.....	. ....	.. .	.. .	.. ..	Nil	Nil	0·80	0·50	88·40	85 14
		Ulipore ...	.....	.....	. .	.. .	.....	.....	.....	Nil	Nil	0·10	?	79·10	?
	Julpigoree ..	Julpigoree ...	...	. ..	....	.. .	.. ..	.. ..	.....	Nil	Nil	0·18	0 55	123·45	117 00
		Alipore Door	.....	. ..	.. .	.. .	.....	.....	.....	Nil	Nil	Nil	?	119·58	?
		Fallacotta ...	.....	.....	.....	.. .	.....	.. .	.....	Nil	Nil	0·80	?	128·23	?
		Debiganj	.....	.....	....	.....	.....	. ..	.. ..	Nil	Nil	1·02	?	90·04	?
		Bhagalpore (Nagrakatta).	.....	....	...	.....	...	.. ..	.....	Nil	Nil	0·71	?	139·22	?
	Cooch Behar	Dinhatta	0·16	.....	.. .	.. ..	.....	.....	.. ..	1	0·16	0·63	0·07	98·83	96 39
		Cooch Behar..	.....	....	. ....	.....	.....	.....	.....	Nil	Nil	0·85	0·44	125·89	118·30
		Mekiligunge..	0·03	...	.....	.....	.....	.....	.....	1	0·03	1·03	0·53	122·40	105·74
		Mashkhanga...	.. ..	.. .	.. ..	....	.....	.....	.....	Nil	Nil	0·40	0·48	118·03	111·44
	Darjeeling Hill.	Buxa .	0 03	0·04	. ..	.. ..	.. ..	.. ..	.....	2	0·07	1·28	1·14	102·37	192·85
		Silliguri .	0·24	.....	.....	.....	.. ..	.. ..	.....	1	0·24	0·31	0 90	121·02	103 40
		Darjeeling ..	.....	.....	.....	.....	.. ..	...	.....	Nil	Nil	0·40	0·03	128·27	108 75
		Kalimpong	0·43	.....	.. ..	.....	.....	.....	.....	1	0·43	0·79	1·31	92·15	83 97
		Kurseong ...	.. ..	.....	.....	.....	.....	.....	.....	Nil	Nil	1·98	?	170·23	?
NORTH BEHAR	Purneah ...	Kissengunge..	. ..	.. ..	. ..	.....	.....	.....	. ....	Nil	Nil	1·30	0·62	103·67	70·43
		Arrareah ..	.....	.....	.....	.....	. .	. .	. ....	Nil	Nil	0·14	0·42	79·75	63 45
		Purneah .	.....	.....	.....	.....	.. .	. .	. ....	Nil	Nil	0·02	0·45	63·47	61 00
		Gondwara ...	.....	....	...	....	. .	.. .	.....	Nil	Nil		?		?
		Balarampore	.....	.....	.....	.....	. ..	. .	.. ..	Nil	Nil		?		?
		Maniari ..	.....	....	.....	.....	.. .	..	. ....	Nil	Nil		?		?
		Kalsagunj ...	.....	.....	.....	.....	. .	.....	. .	Nil	Nil	0·20	?		?
	North Bhagulpore.	Maddapore ..	.....	.....	.....	.	.....	.. ..	.....	Nil	Nil	Nil	0·47	60·85	49·5
		Scopool ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·46	67·26	48·18
		Protabganj ...	.....	.....	.....	.. ..	.....	.....	.....	Nil	Nil	0·31		88·16	
	Durbhunga ...	Lajpore ...	0·13	. ....	.. ..	.....	.....	.....	.. ..	1	0·13	0·13	0·65	42·57	43 23
		Durbhunga ...	0·23	.....	.....	..	.	.....	.....	1	0·23	0·23	0·52	50·24	45 86
		Madhubani ...	0·4	.....	...	.....	...	...	.....	1	0·04	0·45	0·76	63·56	45·08
		Bahera ...	.....	.....	.. ..	.....	...	.. ..	.....	Nil	Nil	Nil		69·90	?
		Boshera ...	.....	.....	... .	.. .	.. ..	.....	.. ..	Nil	Nil	Nil		65·84	?
	Mozufferpore	Sitamarhi .	0·16	.....	.. ..	.....	.....	.....	.....	1	0·06	0·30	0·55	55·43	45·12
		Mozufferpore	0·06	.. .	.. ..	.. ..	.. ..	.....	.....	1	0·06	0·06	0·81	48·47	45 58
		Hajipore ...	0·05	.....	.....	.. ..	.....	.. ..	.....	1	0·05	0·05	0·65	42·57	42·05
		Pare ...	.....	. ..	. ..	.....	.	.. ..	.....	Nil	Nil	Nil	?	37·69	?
		Mahua ...	.....	.....	. ....	.. .	.....	.....	.....	Nil	Nil	Nil	?	41·02	?
		Minhar ...	0·10	.....	.. .	.....	.....	.....	.....	1	0·10	0·40	?	?	?
		Pupri ...	.....	.....	.....	.....	.....	.. ..	.. ..	Nil	Nil	0·54	?	48·14	?

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 31st of January 1890 —co

Meteorological Division.	District.	Station.	Rainfall.							Total.		Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	A r (fr
			Saturday, 25th January.	Sunday, 26th January.	Monday, 27th January.	Tuesday, 28th January.	Wednesday, 29th January.	Thursday, 30th January.	Friday, 31st January.	Number of rainy days.	Rainfall of week.				
North Behar —concluded.	Chumparun	Motihari	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·54	0·66	75·33	
		Bettiah	0·06	.....	.....	.....	.....	.....	.....	1	0·06	0·28	0·69	52·67	
		Bagaha	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	0·87	?	70·24	
		Barhurwa	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·70	
	Saran	Gopalgunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·86	36·48	
		Sewan	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·78	44·20	
		Chuprah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·66	40·74	
South Behar	Shahabad	Buxar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·79	47·41	
		Dehree	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·72	42·05	
		Bhaboosh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·69	38·16	
		Sasseram	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·51	29·41	
		Arrah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·66	42·60	
		Mohaniah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
	Gya	Aurungabad	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·62	36·42	
		Gya	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·60	39·85	
		Nowadah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·70	39·59	
		Jehanabad	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·74	37·40	
		Arwal	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	34·34	
		Daudnagar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	26·60	
		Sherrghati	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	29·29	
		Rajauli	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	17·92	
		PakriBarawan	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	31·90	
	Patna	Patna	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·00	31·49	
		Dinapore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·56	45·33	
		Behar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·67	41·08	
		Barrh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·46	35·84	
		Bickram	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil		41·24	
		Hilsa	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil		35·21	
	Monghyr	Begoosserai	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·59	47·02	
		Monghyr	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·49	41·67	
		Jamui	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·08	39·48	
		Gogri	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	59·19	
		Sheikpura	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	43·32	
	South Bhagulpore	Bhagulpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·49	45·06	
		Banka	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·57	38·34	
		Kolgong	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	46·97	
		Bangaon	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
	Sonthal Pergunnahs.	Rajmehal	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·19	59·90	
		Godda	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·36	49·04	
		Pakour	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	73·50	
		Nya Doomka	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·02	56·77	
		Deoghur	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·44	40·10	
		Jamtara	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·40	45·21	
		Mohagama	.....	.....	.....	.....	.....	.....	.....	Nil	Nil		?	56·41	
		Nawhat	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	55·87	
Chutia Nagpur.	Hazaribagh	Pachamba (*Giridi*).	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·39	38·90	
		Hazaribagh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·58	49·10	
		Semtagurah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·51	36·24	
		Mahudi Hills	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·33		
		Jhoomra Hills	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·81	43·00	
		Barhi	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	31·46	
		Chatra	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	46·04	
		Karagdeha	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil		39·35	
		Ramghur	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		
	Lohardugga	Lohardugga	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·99	45·24	
		Ranchi	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·66	53·61	
		Palamow	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·76	54·16	
		Silli	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	33·80	
		Balumat	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
		Hosseinabad	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	44·40	
		Garwah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	28·77	
	Singbhoom	Chyebassa	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·73	48·76	
		Chakradharpore.	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	40·80	
		Ghatsilla	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	58·70	
		Baharagora	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	53·80	
	Manbhoom	Purulia	0·06	.....	.....	.....	.....	.....	.....	1	0·06	0·06	0·46	43·52	
		Gobindpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·60	33·19	
		Raghunathpore.	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·91	
		Barrabhoom	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	44·32	
		Jhalda	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·42	
		Chas	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	58·56	

Explanation.—Indicates that no rain has fallen If the return for any day has not been received, the corresponding space is left blank. are wanting, the corresponding spaces in the total rainfall columns are left blank.

CALCUTTA, *the 4th February* 1890.

SUMMARY OF THE METEOROLOGICAL AND RAINFALL OBSERVATIONS TAKEN IN BENGAL FOR THE WEEK ENDING FRIDAY, THE 31ST JANUARY 1890.

It was noticed in the report for the previous week that on Friday, the 24th January, a disturbance which had originated in Northern India had commenced to pass over the province, moving in a south easterly direction. The disturbance consisted of an area of low pressure, or perhaps of two distinct areas accompanied by a feeble form of cyclonic circulation of winds. On the Friday there thus appeared to be a tendency to two distinct whirls, one of which had a centre in South Behar, while there was a second in Chutia Nagpur. On the first day of the present week, or on Saturday morning, the 25th instant, the disturbance had again moved in a south-easterly direction, and there was a distinct barometric depression lying over South-East Bengal which was accompanied by a well-marked circulation of winds the centre of which was a little to the south of Dacca. A second feeble depression also appeared to exist off the Ganjam coast, and there also was a tendency to cyclonic circulation along the coast. With the passage of these disturbed conditions through the province, numerous rain showers, in many instances accompanying local storms and in some instances with hail, occurred over the province, and on the 25th rain was generally reported in East Bengal, while very numerous stations in South-West Bengal, North Bengal, and Orissa and a few stations in North Behar also, received rain. On the 26th the disturbance had advanced over Burmah, and rather heavy rain was reported at such stations as Bassein Rangoon, etc., but in Bengal with the disappearance of the depression, weather conditions rapidly improved, and a rather strong northerly wind current set in, bringing with it a great reduction of temperature, the rapid fall of temperature being due to the fact that a moderately heavy fall of snow had been brought to the line of hills to the north and north-west of the province, which caused a cold wave of northerly winds to establish itself completely over the province. So rapid was the fall that the mean temperature of the 24 hours ending at 8 a m of the 26th was at many stations 5°, and at some stations as much as 9° and nearly 10° below the temperature of the previous 24 hours. At this time, therefore, the cold weather conditions set in over the province in a very pronounced form, and they have continued to exist till quite the end of the week. From the 26th, therefore, temperature has been decidedly low, while humidity was also only moderate in amount; pressure became steadily higher, and was by the middle of the week very high, though it fell somewhat towards its close. Skies were almost cloudless, and after the disappearance of the disturbed conditions absolutely no rain fell

Pressure.—Notwithstanding the very high pressure which occurred in the middle of the week after the disappearance of the depression, the mean pressure for the period has been somewhat below the normal at almost all stations. The usual defect has not been larger than about two or three-hundredths of an inch, but at some of the stations in North Bengal it equals four-hundredths, and at Chittagong it even equals six-hundredths of an inch. These larger defects are probably connected with the depression above referred to

Temperature—As stated previously, fell very rapidly on the 26th, and for the remainder of the week it has been decidedly low The mean temperature of the whole province for the week has been 2·4° below the normal, and in such districts as Chutia Nagpur and Orissa the defects have almost equalled four degrees.

The actual temperatures during the week, the range from day to night, and their variation from the normal values are best seen in the following table, where the average maximum, minimum and mean temperatures at nine typical stations in different districts of the province are given, together with the normal values From the figures given it will be seen that the night temperatures have generally been in larger defect than those of the day, and that the mean minimum temperatures of the week have been decidedly low.

The lowest temperature recorded during the week was 37·9° at Ranchi :—

Table showing the excess or defect of the actual mean temperature from the normal for the week ending 31st January 1890.

	Normal mean maximum temperature for the week ending 31st January.	Actual mean maximum temperature for the week ending 31st January 1890.	Variation of actual mean from the normal.	Normal mean minimum temperature for the week ending 31st January.	Actual mean minimum temperature for the week ending 31st January 1890.	Variation of actual mean from the normal.	Normal mean daily temperature for the week ending 31st January.	Actual mean daily temperature for the week ending 31st January 1890.	Variation of actual mean from the normal.
Cuttack	80·2	82·2	−4·0	60·3	55·5	−4·8	73·5	68·8	−4·7
Calcutta	78·1	74·7	−3·4	57·9	53·5	−3·5	67·0	64·0	−3·0
Dacca	79·0	76·0	−3·0	55·5	53·1	−2·4	67·3	64·6	−2·7
Burdwan	78·7	81·3	+1·6	55·4	51·8	−3·6	67·4	66·8	−1·0
Patna	73·3	72·9	−0·4	50·5	47·0	−3·5	61·8	59·9	−1·9
Gya	76·3	73·9	−2·4	52·7	51·0	−1·7	64·5	62·5	−2·0
Purneah	75·1	72·7	−2·4	49·0	44·4	−4·6	62·0	58·5	−3·5
Hazaribagh	73·4	70·9	−2·5	51·4	46·4	−5·0	62·5	58·6	−3·9
Darjeeling	42·8	53·3	+10·5	33·5	32·7	−0·8	38·4	43·0	+4·6

The rainfall of the week has been rather important, and the falls in South-West and East Bengal have averaged about half an inch. In other districts the falls are much smaller, and Orissa and North Bengal only average about a tenth of an inch, while in North Behar it is only about half this. Chûtia Nagpur and South Behar report no rain at all.

The following table gives the summary of the temperature and rainfall data of each of the seven meteorological divisions of the province for the week ending Friday, the 31st of January 1890 :—

Meteorological Divisions.	Temperature						Rainfall									
	Highest observed during week.	Lowest observed during week.	Averages for week.			Average mean of week above or below normal mean of week.	Of week.			Rainy days.			Since 1st of month.		Since 15th May 1889.	
			Of highest of each day.	Of lowest of each day.	Of mean for each day.		Average.	Normal average.	Variation.	Average number in week.	Normal average number in week.	Variation.	Average.	Normal Average.	Average	Normal average.
Orissa	88·4	46 9	79·7	55·8	67·8	3·4	0·09	0·21	−0 12	0 3	0 4	−0·1	0·09	0·37	62·10	53·90
South-West Bengal ...	87 3	43 8	77 2	52·1	64 6	−2·3	0·40	0·16	+0·24	0 6	0·5	+0·1	0·44	0·45	52 81	52·01
East Bengal	80·6	46·0	75·1	53·1	64·2	−1·2	0·56	0·18	+0·38	0 9	0·4	+0·5	1·07	0·55	76 69	74 26
North Bengal	79 1	41·2	73·9	48·6	61 2	−1·9	0·13	0·20	−0 07	0·4	0 4	0	0·42	0·50	73 54	70 37
North Behar*	76·4	40·5	72·7	46·2	59·4	−1·7	0·04	0·24	−0·20	0 4	0 5	−0·1	0·23	0 63	57·89	48·82
South Behar	80·3	41·9	74·0	47·3	61·6	−1·6	Nil	0·15	−0·15	0·0	0·4	−0·4	Nil	0 55	44·16	43·89
Chutia Nagpur	77·3*	37 9*	70·9*	45 5*	58·2*	−4·0*	Nil	0·19	−0 19	0·0	0·3	−0·3	Nil	0·65	43 08	49·53

* Chyebassa and Chupra not included.

Meteorological Office, Bengal; *The 4th February* 1890.

A Pedler,
Meteorological Reporter to the Govt. of Bengal.

Results of the Barometrical and Thermometrical Observations taken at the Meteorological Office, Chowringhee, from 26th January to 1st February 1890.

Month.	Date.	Pressure at 10 A.M. corrected and reduced to 32° Fahr.	Temperature						Hygrometry.			Rainfall past 24 hours.
			Daily mean.	Maximum.	Range.	Minimum.	Dry bulb at 10 A.M.	Wet bulb at 10 A.M.	Vapour tension at 10 A.M.	Dew point at 10 A.M.	Humidity at 10 A.M.	
		Inches.	°	°	°	°	°	°	Inches.	°	%	Inches.
Jan. 1890 ...	26th ...	30·021	64·7	73·4	17·5	55·9	67 6	57·2	·331	47·6	48	Nil
,, ,, ...	27th ...	·015	61·9	72·9	22·1	50·8	65·1	56·7	·350	49·1	56	.....
,, ,, ...	28th ...	·070	61·4	74·4	26·0	48·4	64·6	54·7	·298	44·8	49	.....
,, ,, ...	29th ...	·131	63·3	74·9	23·2	51·7	66·6	54·7	·272	42·4	41	.....
,, ,, ...	30th ...	·085	64·3	77·1	25·6	51·5	66·6	57·5	·357	49·7	55	.....
,, ,, ...	31st ...	·188	65·9	77·3	22·9	54·4	69·6	59·7	·382	51·5	53	.....
Feb. ,, ...	1st ...	·152	65·5	77·9	24·8	53 1	70 0	61·2	·426	54 5	57	.....

		Inches.
The mean 10 A.M. pressure of the seven days		30·085
		°
The mean temperature of the seven days		63·9
The extreme variation of temperature		29·5
The maximum temperature		77·9
		%
The mean 10 A.M. relative humidity of the seven days		51
		Inches.
The total fall of rain from 26th January to 1st February 1890 ...		Nil

The daily mean temperatures are the crude means of maximum and minimum temperatures.

C. Little,
For Meteorological Reporter to the Govt. of India.

Meteorological Office, India;
The 3rd February 1890.

MEMORANDUM.

THE returns from the principal Municipalities in Bengal presented, during the week ending 18th January 1890, the following results :—

1. Births were registered in them at the rates of 23·1 per 1,000 of population, as opposed to very nearly the same proportion, viz., 22·8 per 1,000 in the preceding week ending 11th January, and deaths at 21·8 against 25·9 per 1,000, indicating a falling off in the registration of these events.

2. The following Municipalities returned the highest proportions of births and deaths :—

Births.

	Ratio per *mille.*
Arrah	49·1
Naraingunj	41·4
Monghyr	38·0
Utterpara	37·7
Serampore	37·3
Bali	31 6
Comillah	30·8
Chittagong	30·5

Deaths.

	Ratio per *mille.*
Poori	65·0
Naraingunj	58·0
Jessore	49·0
Ranaghat	47·9
Utterpara	47·2
Serampore...	41·2
Chittagong	37 6
Darjiling	37 0
Burdwan	36·6
Comillah	34·7
Hughli and Chinsurah ...	32·8
Rampore Beauleah	31·5

3. The only noticeable point, in connection with the incidence of the specific death-causes in comparison with the outcome of the preceding week, is a diminution of mortality from fever and the maladies classed under the head of "Other causes"—*vide* subjoined table :—

	Ratio per *mille* during the weeks ending—	
	18th January 1890.	11th January 1890.
Cholera	2·3	2·4
Small-pox	·6	·4
Fever	8 9	11·5
Bowel-complaints	3·1	3 1
Injury	·3	·4
Other causes	6·6	8·1

4. Of the death-causes above indicated, while small-pox continued to prevail with added severity in the Poori Municipality (mortality 18·9 per 1,000 of population, against 14 7 per 1,000 during the preceding week ending 11th January), cholera, fever and "other causes" proved conspicuously fatal in the following Municipalities :—

Cholera.

	Ratio per *mille.*
Jessore	30 6
Naraingunj	20·7
Hughli and Chinsurah ...	9·8
Chittagong	9·4
Dacca	5·2
Howrah	4·6

Fever.

	Ratio per *mille.*
Ranaghat	29·9
Darjiling	29·6

Other causes.

	Ratio per *mille.*
Poori	25·2
Naraingunj	20·7
Comillah	19·3
Serampore	17·7
Burdwan	16 8
Chittagong	11·7

5. The death-rates in relation to *Sex*, *Class* and *Age* stood as noted below :—

According to Sex.

	Ratio per *mille.*
Males	23·3
Females	20·3
Ratio of male deaths to every 100 female deaths, calculated on the proportion such mortality bears to the total male and female population ...	115

According to Class

	Ratio per *mille.*
Christians	14 9
Hindus	21·5
Mahomedans ...	22·8
Buddhists	51·4

According to Age.

	Ratio per *mille.*
Under 1 year ...	159 8
1 and under 5 years ...	23·5
5 „ 10 „ ...	8 9
10 „ 15 „ ...	8·6
15 „ 20 „ ...	9 6
20 „ 30 „ ...	14 8
30 „ 40 „ ...	13·9
40 „ 50 „ ...	20 3
50 „ 60 „ ...	22 8
60 years and upwards ...	68·0

W. H. GREGG, *Dip. Publ. Health, Camb.*,
Sanitary Commissioner for Bengal.

The 3rd February 1890.

1	2	3			4			5			6	7							8						9	10		11		12
												MORTALITY ACCORDING TO—																		
												Disease.																		
												Deaths from—							Ratio per 1,000 of population per annum.											
DISTRICTS.	NAMES OF MUNICIPALITIES.	POPULATION.			BIRTHS.																						Sex.				
					Number of—			Ratio per 1,000 of Population per annum.																			Deaths.		Ratio per 1,000 of Population per annum.		
		Males.	Females	Total.	Males.	Females	Total.	Males.	Females.	Total.	Ratio of male births to every 100 female births.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injury.	Other diseases.	All causes.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injury.	Other diseases.	All causes.	Ratio of deaths per 1,000 of population per annum in the previous week	Males.	Females.	Males.	Females.	Ratio of male deaths to every 100 female deaths, calculated on the proportion such mortality bears to the total male and female population.
Burdwan ...	Burdwan	18,063	16,017	34,080	7	6	13	10·7	9·1	19·8	116	3	...	7	3	...	11	24	4·5	...	10·7	4·5	..	16·8	36·6	39·7	16	8	46·1	26·0	177
Midnapore ...	Midnapore ...	16,927	16,633	33,560	4	3	7	6·2	4·6	10·8	133	...	...	1	3	...	6	10	...	...	1·5	4·6	...	9·3	15·5	27·9	6	4	18·4	12·5	150
Hughli ...	Hughli and Chinsurah.	15,858	15,829	31,687	5	8	13	8·2	13·1	21·3	62	6	...	9	3	...	2	20	9·8	...	14·7	4·9	...	3·3	32·8	36·1	4	16	13·1	52·6	25
Serampore ...	Serampore ...	13,559	12,937	26,496	8	11	19	15·7	21·6	37·3	72	...	..	7	5	...	9	21	...	...	13·7	9·8	...	17·7	41·2	13·2	10	11	38·4	44·2	86
	Utterpara	3,046	2,464	5,510	2	2	4	15·8	18·8	37·7	100	...	...	1	2	...	2	5	...	...	9·4	16·8	...	16·8	47·2	10·5	4	1	68·3	21·1	324
Howrah ...	Howrah	53,153	37,660	90,813	23	22	45	13·2	12·6	25·8	104	8	...	16	13	...	10	47	4·6	...	9·2	7·4	...	5·7	26·9	25·8	27	20	26·4	27·6	96
	Bali	7,836	6,979	14,815	3	6	9	1·5	21·1	31·6	50	...	...	2	3	...	1	6	...	...	7·0	10·5	...	3·5	21·1	21·0	5	1	33·2	7·5	471
Nuddea ...	Kishnaghur ...	13,263	14,214	27,477	5	2	7	9·4	3·8	13·2	251	...	...	1	...	...	...	1	...	...	1·9	...	...	...	1·9	13·2	...	1	...	3·7	No male death.
	Ranaghat	4,025	4,655	8,683	3	2	5	17·9	12·0	29·9	150	...	...	5	1	...	2	8	...	...	29·9	6·0	...	12·0	47·9	41·9	6	2	77·5	22·3	350
	Santipore	13,709	15,979	29,687	5	3	8	8·8	5·2	14·0	164	3	...	3	..	...	1	7	5·2	...	5·2	...	...	1·8	12·3	10·5	2	5	7·6	16·3	44
Jessore ...	Jessore	4,830	3,665	8,495	2	1	3	12·2	6·1	18·4	200	5	...	2	...	...	1	8	30·6	...	12·2	...	..	6·1	49·0	55·1	4	4	43·1	56·8	77
Rajshahye ...	Rampore Beauleah	10,766	9,025	19,791	4	7	11	10·5	18·4	28·9	57	...	...	7	4	...	1	12	...	..	18·4	10·5	...	2·6	31·5	26·3	9	3	43·5	17·3	253
Darjiling ...	Darjiling	4,579	2,439	7,018	1	1	2	7·4	7·4	14·8	100	..	...	4	1	...	...	5	...	...	29·6	7·4	...	...	37·0	44·5	4	1	45·4	21·3	214
Dacca ...	Dacca	42,782	37,379	80,161	13	11	24	8·4	7·1	15·6	118	8	..	10	2	1	12	33	5·2	...	6·5	1·3	·6	7·8	21·4	35·7	19	14	23·1	19·5	121
	Naraingunj ...	7,605	4,956	12,561	10	...	10	41·4	...	41·4	No female birth.	5	..	3	1	...	5	14	20·7	...	12·4	4·1	...	20·7	58·0	29·0	10	4	65·4	42·0	162
Chittagong ...	Chittagong ...	13,340	8,790	22,130	5	8	13	11·7	18·8	30·5	62	4	.	6	1	...	5	16	9·4	...	14·1	2·3	...	11·7	37·6	42·3	13	3	50·7	17·7	234
Tipperah ...	Comillah	8,153	5,353	13,506	5	3	8	19·3	11·5	30·8	166	2	...	2	...	...	5	9	7·7	...	7·7	...	...	19·3	34·7	38·5	4	5	25·5	48·6	53
Patna	Patna City ...	78,762	81,475	160,237	16	13	29	5·2	4·2	9·4	123	2	1	10	5	1	6	25	·6	·3	3·2	1·6	·3	1·9	8·1	9·4	16	9	10·6	5·7	200
Gya	Gya	38,290	37,831	76,121	17	19	36	11·6	13·0	24·6	89	...	...	24	...	1	9	34	...	...	16·4	...	·7	6·1	23·2	26·0	15	19	20·4	26·1	79
Shahabad ...	Arrah	20,960	22,505	43,465	22	19	41	20·3	22·7	49·1	115	...	...	12	4	1	..	17	...	...	14·3	4·8	1·2	...	20·3	58·6	10	7	24·8	16·2	150
Mozufferpore .	Mozufferpore ...	23,084	19,658	42,742	13	7	20	15·8	8·5	24·3	185	..	...	2	4	1	4	11	..	...	2·4	4·9	1·2	4·9	13·4	10·9	7	4	15·8	10·8	150
Durbhanga ...	Durbhanga ...	33,774	32,322	66,096	18	20	38	14·2	15·7	29·9	90	...	.	20	..	...	9	29	...	...	15·7	...	...	7·1	22·8	26·0	15	14	23·1	22·5	104
Sarun	Chupra	25,116	26,554	51,670	12	16	28	12·1	16·1	28·2	75	...	2	2	1	...	5	10	...	2·0	2·0	1·0	...	5·0	10·1	15·1	4	6	8·3	11·7	72
Bhagulpore ...	Bhagulpore ...	29,640	27,813	57,453	20	13	33	13·1	11·8	29·9	153	1	...	9	2	...	10	22	·9	...	8·1	1·8	...	9·1	19·9	19·9	14	8	24·6	15·0	160
Monghyr ..	Monghyr	28,154	29,366	57,520	17	25	42	15·4	22·6	33·0	68	...	...	10	4	1	6	21	...	...	9·0	3·6	·9	5·4	19·0	22·6	6	15	11·1	26·6	42
Purneah ...	Purneah	8,463	6,553	15,016	1	...	1	3·5	...	3·5	No female birth.	...	...	...	...	...	...	...	...	...	...	...	...	..	...	24·2	...	...	...	...	.....
Poori	Poori	13,247	11,537	24,784	1	1	2	2·1	2·1	4·2	100	...	9	8	2	...	12	31	...	18·9	16·3	4·2	...	25·2	65·0	58·7	17	14	66·7	63·1	105
	Total	650,996	510,588	1,061,574	242	229	471	11·9	11·2	23·1	105	47	12	183	64	6	134	446	2·3	·6	8·9	3·1	·3	6·6	21·8	25·9	247	199	23·3	20·3	115

DISTRICTS.	NAMES OF MUNICIPALITIES.	MORTALITY ACCORDING TO— Class. Deaths among— Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.	Ratio per 1,000 of Population per annum. Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.
Burdwan ...	Burdwan	...	19	5	...	...	..	41·7	25·3	...	.
Midnapore ...	Midnapore ..	...	7	3	...	..	...	14·0	21·6	...	...
Hughli ...	Hughli and Chinsurah	...	15	5	...	..	..	30·3	42·3	...	...
Serampore ...	Serampore ...	...	19	2	...	.	.	39·2	119·9	..	...
	Utterpara	...	5	...	...	...	...	49·8	...	.	.
Howrah ...	Howrah	1	35	11	...	...	27·5	20·7	27·9	..	...
	Bali	...	6	...	...	.	...	23·3	..	...	.
Nuddea ...	Kishnaghur ...	...	1	...	...	...	...	2·8	...	..	...
	Ranaghat	...	4	4	...	..	.	29·4	152·1		..
	Santipore	...	6	1	...	...	..	15·1	5·8	...	...
Jessore ..	Jessore	...	6	2	...	...	..	69·2	27·2	...	..
Rajshahye ...	Rampore Beauleah	...	2	10	...	...	...	10·5	53·0	...	...
Darjiling ...	Darjiling	...	3	2	...	...	...	34·0	169·9	...	...
Dacca	Dacca	...	16	17	.	...	...	20·6	22·5	...	...
	Narainganj ...	...	9	5	...	...	...	74·0	42·2	...	...
Chittagong ..	Chittagong ..	1	5	8	2	...	65·3	44·8	27·2	433·3	..
Tipperah ...	Comillah	...	4	5	...	...	...	35·0	35·2	...	...
Patna	Patna City ..	...	18	7	...	...	...	7·9	8·9	...	...
Gya ...	Gya	...	24	10	...	...	...	20·8	32·3	..	.
Shahabad ...	Arrah	...	13	4	...	...	...	21·8	16·8	...	...
Mozufferpore ..	Mozufferpore ...	...	5	6	...	...	...	8·7	25·0	..	...
Durbhanga ...	Durbhanga ...	...	19	10	...	...	...	27·4	29·6	...	...
Sarun	Chupra	...	10	...	...	...	...	13·1	...	...	...
Bhagulpore ...	Bhagulpore ...	...	15	7	...	...	...	19·6	21·1	...	...
Monghyr ...	Monghyr	...	16	5	...	...	...	18·6	20·7	...	...
Purneah ...	Purneah	...	...	...	...	...	...	...	...	...	...
Poori ..	Poori	...	31	...	...	...	...	65·7	...	...	...
	TOTAL ...	2	313	129	2	...	14·9	21·5	22·8	51·4	..

MORTALITY ACCORDING TO— Age. Deaths.

DISTRICTS.	NAMES OF MUNICIPALITIES.	Under 1 year.	1 and under 5 years.	5 and under 10 years.	10 and under 15 years.	15 and under 20 years.	20 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 and under 60 years.	60 years and upwards.
Burdwan ...	Burdwan	6	1	..	1	2	5	1	3	1	4
Midnapore ...	Midnapore ..	1	.	..	..	.	1	1	3	2	2
Hughli ...	Hughli and Chinsurah	1	3	4	...	1	2	...	2	...	7
Serampore ...	Serampore ...	3	3	.	2	...	4	2	3	...	4
	Utterpara	1	.	..	...	...	1	2	1	...	...
Howrah ...	Howrah	8	6	2	...	1	9	5	5	4	7
	Bali	2	1	.	...	.	3	..	...	...	...
Nuddea ...	Kishnaghur ...	...	...	..	...		...	1	...	..	...
	Ranaghat	...	2	...	1	...	1	1	..	2	1
	Santipore	3	1	..	...	.	2	.	.	1	..
Jessore ..	Jessore	1	...	.	..	1	2	..	3	1	...
Rajshahye ...	Rampore Beauleah	2	...	2	1	1	1	2	1	1	1
Darjiling ...	Darjiling	2	1	...	...	...	...	1	...	...	1
Dacca	Dacca	7	2	1	...	...	9	2	6	4	2
	Narainganj ...	3	...	..	...	...	2	3	1	..	5
Chittagong ..	Chittagong ..	3	1	.	3	1	2	2	2	...	2
Tipperah ...	Comillah	1	1	...	..	...	5	..	...	...	2
Patna	Patna City ..	4	1	...	2	1	...	3	1	4	9
Gya ...	Gya	5	3	2	1	3	...	2	8	2	8
Shahabad ...	Arrah	2	1	1	...	...	2	2	1	3	5
Mozufferpore ..	Mozufferpore ...	2	2	1	...	1	1	..	...	2	2
Durbhanga ...	Durbhanga ...	2	2	2	3	1	2	5	3	2	7
Sarun	Chupra	5	1	...	...	...	1	...	...	.	3
Bhagulpore ...	Bhagulpore ...	6	1	1	1	..	4	3	...	2	4
Monghyr ...	Monghyr	6	3	...	1	1	...	4	1	...	5
Purneah ...	Purneah	...	...	...	...	...	...	...	...	...	...
Poori ..	Poori	2	6	3	...	1	1	5	5	3	5
	TOTAL ...	78	42	19	16	15	60	47	49	34	86

MORTALITY ACCORDING TO— Age. Ratio per 1,000 of Population per annum.

DISTRICTS.	NAMES OF MUNICIPALITIES.	Under 1 year.	1 and under 5 years.	5 and under 10 years.	10 and under 15 years.	15 and under 20 years.	20 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 and under 60 years.	60 years and upwards.
Burdwan ...	Burdwan	472·7	23·0		20·7	33·3	32·8	7·5	35·3	21·2	140·4
Midnapore ...	Midnapore ..	70·0	...	...	...	...	7·1	9·4	41·9	50·4	56·8
Hughli ...	Hughli and Chinsurah	69·8	70·3	72·1	...	20·7	16·8	.	24·9	...	175·6
Serampore ...	Serampore ...	219·7	86·4	...	46·8	..	38·6	20·9	46·2	...	149·5
	Utterpara	323·0	...	..	..	.	45·2	98·0	74·2	.	...
Howrah ...	Howrah	201·6	56·3	8·3	...	7·1	20·6	13·5	22·1	37·9	97·0
	Bali	287·3	52·1	...	...	...	46·6	...	...	...	...
Nuddea ...	Kishnaghur ...	...	...	...	...	...	...	12·1	...	...	...
	Ranaghat	...	130·8	.	59·9	...	34·5	41·7	...	143·6	91·4
	Santipore	184·6	17·9	...	...	...	21·2	...	...	22·6	...
Jessore ..	Jessore	186·0	...	...	...	71·0	51·6	...	148·6	92·4	...
Rajshahye ...	Rampore Beauleah	256·2	...	50·0	28·9	31·3	12·5	28·9	21·2	41·9	54·0
Darjiling ...	Darjiling	859·5	80·9	...	...	...	...	36·3	...	...	307·7
Dacca	Dacca	191·8	14·1	5·2	..	...	30·5	8·9	37·2	43·9	18·7
	Narainganj ...	559·1	...	...	..	..	39·0	72·9	37·3	...	298·8
Chittagong ..	Chittagong ..	277·1	26·4	..	60·5	21·5	22·5	31·2	46·1	...	130·7
Tipperah ...	Comillah	175·1	39·5	...	...	...	94·2	...	...	...	153·4
Patna	Patna City ..	48·3	3·6	...	7·2	4·7	...	6·7	2·8	14·7	33·9
Gya ...	Gya	145·3	24·6	14·9	7·7	29·8	...	8·2	42·6	15·8	80·8
Shahabad ...	Arrah	80·7	11·7	10·1	...	...	13·2	16·2	11·1	50·4	90·2
Mozufferpore ..	Mozufferpore ...	108·9	25·7	11·6	...	17·2	6·1	...	...	32·6	42·7
Durbhanga ...	Durbhanga ...	66·8	13·7	13·4	28·1	12·9	7·8	23·3	21·0	23·7	114·0
Sarun	Chupra	184·3	10·1	...	...	...	5·6	...	...	...	45·9
Bhagulpore ...	Bhagulpore ...	261·3	9·6	8·9	8·3	...	19·0	16·8	...	24·4	57·7
Monghyr ...	Monghyr	210·1	25·1	...	9·1	13·8	..	23·3	8·2	...	72·5
Purneah ...	Purneah	...	...	...	...	...	...	...	...	...	...
Poori ..	Poori	343·2	173·6	69·6	...	28·0	9·8	64·2	78·2	69·9	144·0
	TOTAL ...	159·8	23·5	8·9	5·6	9·6	14·8	13·9	20·3	23·8	68·0

OFFICE OF SANITARY COMMISSIONER FOR BENGAL,

W. H. GREGG, *Dip. Publ. Health, Camb.*,

PUBLIC WORKS DEPARTMENT,—BENGAL.

IRRIGATION BRANCH.

Statement showing heights over mean sea-level and low-water in the Rivers Ganges, Bhagiruthee, Jellinghee, and Brahmapootra for the month of November 1889.

Date.	River Ganges.																River Bhagiruthee.		River Jellinghee.		River Brahmapootra.	
	Mirzapur.		Benares.		Buxar.		Dinapur.		Monghyr.		Sahebgunge.		Rampore Beauleah		Gealundo.		Berhampore.		Sarupgunge.		Gowhatty.	
	Miles.	86		134	48	90		177	87	297	110	381	94	471	90	591	120						
	Distance.	From Allahabad		From Allahabad	From Mirzapur	From Benares		From Benares	From Buxar	From Benares	From Dinapur	From Benares	From Monghyr	From Benares	From Sahebgunge	From Benares	From Rampore Beauleah						
	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.	Height over zero.	Height over mean sea-level.
1st	6·25	215·47	7·25	204·05	7·[illegible]	176·[illegible]3	12·80	147·13	6·83	1·[illegible]	7·76	75·50	7·79	49·79	10·17	19·11	10·75	41·49	11·00	15·30	13·60	162·36
2nd	5·67	214·89	7·08	204·88	7·[illegible]	177·[illegible]7	12·[illegible]0	146·[illegible]3	6·75	1·[illegible]·[illegible]	7·17	75·17	7·42	49·42	10·17	19·11	10·50	44·24	10·75	15·05	13·30	162·06
3rd	5·25	214·47	6·92	204·72	7·[illegible]3	177·[illegible]5	12·44	145·[illegible]7	6·50	1·[illegible]·35	6·[illegible]	74·[illegible]2	7·04	49·04	10·17	19·11	10·33	44·07	10·50	14·80	11·90	160·66
4th	8·00	214·22	6·75	204·55	7·17	176·[illegible]	12·20	1·[illegible]·[illegible]	6·33	1·[illegible]·18	6·75	74·75	6·75	48·75	10·17	19·11	10·08	43·82	10·42	14·72	10·50	159·26
5th	7·84	214·06	6·42	204·12	7·[illegible]	175·[illegible]2	11·[illegible]0	143·[illegible]5	6·08	1·[illegible]·93	6·25	74·25	6·54	48·54	10·25	19·19	9·92	43·66	10·25	14·55	9·30	155·06
6th	7·67	213·89	6·42	204·22	6·[illegible]2	175·[illegible]7	12·[illegible]0	144·[illegible]5	5·75	1·[illegible]·68	6·00	74·00	6·[illegible]5	4·[illegible]5	10·17	19·11	9·[illegible]8	43·32	10·13	14·43	8·50	157·26
7th	7·[illegible]7	213·89	6·[illegible]1	204·12	6·75	175·[illegible]0	11·[illegible]1	1·[illegible]·[illegible]4	5·[illegible]7	1·[illegible]·[illegible]2	5·[illegible]5	73·83	6·[illegible]9	48·19	1·[illegible]0	18·[illegible]4	9·42	43·16	10·04	14·34	7·90	156·66
8th	7·[illegible]7	213·[illegible]9	6·33	203·13	6·67	175·72	11·09	143·83	5·54	1·[illegible]·[illegible]1	5·75	73·75	6·15	48·15	9·67	18·61	9·17	42·91	9·92	14·22	7·40	156·16
9th	7·58	213·80	6·25	203·05	6·58	175·63	11·[illegible]9	4·[illegible]3	5·[illegible]5	1·[illegible]·[illegible]0	5·[illegible]3	73·[illegible]3	6·11	48·11	9·25	18·19	9·00	4·[illegible]4	9·71	14·01	6·90	155·66
10th	7·[illegible]0	213·72	6·17	203·97	6·50	175·[illegible]5	1·[illegible]9	1·[illegible]·[illegible]4	5·[illegible]5	1·[illegible]·[illegible]3	5·[illegible]7	73·[illegible]7	6·04	48·04	8·92	17·86	8·[illegible]3	42·57	9·50	13·80	6·50	155·26
11th	7·[illegible]1	213·53	6·08	202·88	6·42	175·47	11·30	143·43	4·[illegible]8	1·[illegible]·73	5·[illegible]1	73·[illegible]0	6·03	48·[illegible]0	8·[illegible]8	17·52	8·67	42·41	9·17	13·47	6·20	154·96
12th	7·[illegible]5	213·47	6·00	202·80	6·33	175·38	11·[illegible]1	1·[illegible]·[illegible]3	4·[illegible]3	1·[illegible]·[illegible]3	4·[illegible]3	72·[illegible]4	5·[illegible]6	47·[illegible]6	8·33	17·27	8·42	42·16	9·00	13·30	5·70	154·46
13th	7·17	1·[illegible]·39	6·00	2·2·80	6·17	175·22	11·08	143·[illegible]8	4·[illegible]7	1·[illegible]·[illegible]2	[illegible]	[illegible]	5·[illegible]2	47·[illegible]2	8·[illegible]8	17·02	8·25	41·99	8·67	12·97	5·50	154·26
14th	7·01	213·22	5·92	202·72	6·08	1·[illegible]·[illegible]8	1·[illegible]·[illegible]	1·[illegible]·[illegible]5	4·58	1·[illegible]·43	[illegible]	[illegible]	5·[illegible]5	47·88	7·92	16·86	8·17	41·91	8·42	12·72	5·30	154·06
15th	7·00	213·22	5·75	202·55	6·00	1·[illegible]·65	10·[illegible]	1·[illegible]·[illegible]3	4·[illegible]0	1·[illegible]·[illegible]5	[illegible]	[illegible]	5·70	47·70	7·[illegible]3	16·77	8·08	41·82	8·17	12·47	5·00	153·76
16th	6·92	213·14	5·[illegible]8	2·2·[illegible]5	5·92	1·[illegible]·[illegible]7	1·[illegible]·[illegible]6	1·[illegible]·[illegible]5	4·38	1·[illegible]·23	[illegible]	[illegible]	5·75	47·75	7·[illegible]3	16·77	8·[illegible]0	41·74	9·17	13·47	5·00	153·76
17th	6·75	212·97	5·42	202·22	5·92	1·[illegible]·87	10·[illegible]	1·[illegible]·[illegible]8	4·[illegible]	1·[illegible]·[illegible]0	[illegible]	[illegible]	5·[illegible]3	47·73	7·[illegible]3	16·77	7·92	41·66	9·83	14·13	4·60	153·36
18th	6·67	212·89	5·25	202·05	5·[illegible]3	1·[illegible]·[illegible]8	1·[illegible]·[illegible]0	1·[illegible]·[illegible]3	4·21	1·[illegible]·[illegible]5	[illegible]	[illegible]	5·71	47·71	7·[illegible]3	16·77	7·83	41·57	10·92	15·22	4·20	153·26
19th	6·58	212·80	5·08	201·88	5·[illegible]3	1·[illegible]·[illegible]4	1·[illegible]·[illegible]	1·[illegible]·[illegible]3	4·[illegible]3	1·[illegible]·[illegible]8	[illegible]	71·75	5·67	47·67	7·[illegible]0	16·44	7·92	41·41	11·29	15·59	4·40	153·14
20th	6·50	212·72	5·08	201·88	5·75	1·[illegible]·50	10·[illegible]3	1·[illegible]·[illegible]3	4·[illegible]4	1·[illegible]·[illegible]2	3·[illegible]7	71·67	5·67	47·67	7·17	16·11	7·50	41·24	11·00	15·30	4·30	153·06
21st	6·42	212·64	5·00	201·80	5·67	1·[illegible]·[illegible]2	1·[illegible]·45	1·[illegible]·[illegible]3	4·01	1·[illegible]·[illegible]5	3·[illegible]7	71·67	5·63	47·63	7·17	16·11	7·42	41·16	10·83	15·13	4·10	152·86
22nd	6·33	212·55	4·[illegible]8	201·76	5·[illegible]4	1·[illegible]·[illegible]3	1·[illegible]·[illegible]5	1·[illegible]·[illegible]8	3·94	1·[illegible]·[illegible]9	[illegible]·67	71·67	5·[illegible]8	47·[illegible]8	7·17	16·11	7·33	41·07	10·67	14·97	4·00	152·76
23rd	6·25	212·47	4·[illegible]2	201·72	5·[illegible]0	1·[illegible]·[illegible]5	10·29	1·[illegible]·[illegible]3	3·83	1·[illegible]·[illegible]5	[illegible]·[illegible]5	71·[illegible]	5·[illegible]6	47·[illegible]6	7·[illegible]5	16·02	7·25	40·99	10·58	14·88	3·70	152·46
24th	6·08	21··[illegible]1	4·[illegible]7	201·63	5·50	1·[illegible]·55	10·20	1·[illegible]·[illegible]3	3·[illegible]5	1·[illegible]·[illegible]1	[illegible]·58	71·[illegible]8	5·52	47·52	6·83	15·77	7·08	40·82	10·54	14·80	3·50	152·26
25th	6·00	212·22	4·75	201·55	5·42	1·[illegible]·47	10·10	1·[illegible]·[illegible]3	3·67	1·[illegible]·52	3·42	71·42	5·46	47·46	6·67	15·61	7·00	40·74	10·08	14·38	3·10	151·86
26th	5·92	212·14	4·[illegible]9	201·38	5·[illegible]5	1·[illegible]·30	10·[illegible]	1·[illegible]·[illegible]3	3·[illegible]8	1·[illegible]·[illegible]1	3·42	71·42	5·44	47·44	6·[illegible]5	15·[illegible]4	6·92	40·66	9·58	13·88	2·90	151·66
27th	5·75	21··07	4·50	20··80	5·[illegible]5	1·[illegible]·[illegible]0	9·[illegible]	1·[illegible]·[illegible]3	3·[illegible]0	1·[illegible]·[illegible]5	3·33	71·33	5·42	47·42	6·25	15·19	6·75	40·49	9·00	13·30	2·70	151·46
28th	5·58	211·[illegible]4	4·42	201·22	5·17	1·[illegible]·[illegible]2	9·[illegible]	1·[illegible]·[illegible]3	3·48	1·[illegible]·[illegible]3	3·[illegible]5	71·[illegible]5	5·[illegible]8	47·[illegible]8	[illegible]·[illegible]8	15·02	6·67	40·41	8·17	12·47	2·60	151·36
29th	5·50	211·72	4·[illegible]5	201·18	5·02	1·[illegible]·[illegible]4	9·[illegible]5	1·[illegible]·[illegible]8	3·20	1·[illegible]·[illegible]4	[illegible]·[illegible]1	71·[illegible]	5·[illegible]3	47·[illegible]3	5·92	1·[illegible]6	6·58	40·32	7·92	12·22	2·60	151·36
30th	5·42	211·64	4·25	201·03	5·00	1·[illegible]·05	9·70	1·[illegible]·[illegible]3	3·17	1·[illegible]·[illegible]2	2·92	70·92	5·31	47·31	5·[illegible]6	14·[illegible]	6·42	40·16	7·50	11·80	2·40	151·16

CALCUTTA;
The 4th February 1890.

G. A. G. SHAWE,
Under-Secretary to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT, IRRIGATION BRANCH, BENGAL.

SOUTH-WESTERN CIRCLE.

CALCUTTA AND EASTERN CANALS.

Statement showing quantities of Goods carried during the month of November 1889.

Number of boats or rafts.	Description.	Total Government and Private. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	Private. Quantity. Tons.	Value. Rupees.	Remarks.
125	1. Grain ...	2,200	3	2,203	2,44,575	2,203	2,44,575	
.....	2. Cotton ...	.....	.....	.....	.....	.....	.....	
20	3. Oilseeds .	272	.....	272	26,900	272	26,900	
431	4. Salt ...	507	6,975	7,482	7,85,636	7,482	7,85,636	
.....	5. Piece-goods ..	.....	.....	.....	.....	.....	.....	
8	6. Metal ...	42	39	81	29,250	81	29,250	
95	7. Building materials	2,221	104	2,325	26,719	2,325	26,719	
3,225	8. Miscellaneous* ...	28,864	2,134	30,998	38,76,935	30,998	38,76,935	
550	9. Fuel ...	9,168	3,498	12,666	1,03,268	12,666	1,03,268	
... ..	10. Timber ...	.....	.....	.. ...	.....	... .	.....	
.....	11. Bamboos ...	.....	..	.....	... .	.....	.....	
4,454	12. Total ..	43,274	12,753	56,027	50,93,283	56,027	50,93,283	
5,914 & 1 raft.	13. Total of same month last year.	56,608 & 75 c. ft	15,625	72,233 & 75 c. ft.	58,29,503	72,233 & 75 c. ft.	58,29,503	

* For details, see next page.

	Up.	Down.	Total.
4. Total number of boats plying cargo No.	3,775	679	4,454
4a. Ditto empty boats „	1,648	779	2,427
5. Total number of boats plying passenger No.	413	13	426
6. Total registered tonnage, cargo Tons	119,547	32,502	152,049
7. Total registered tonnage, passenger Tons	898	42	940
8. Ton-mileage ...	1,059,905	325,020	1,384,925
9. Estimated value of cargo Rs.	39,67,044	11,26,239	50,93,283
10. Number of passengers No.	1,612	104	1,716
11. Rafts, bamboos C. ft.	.....	.....	.....
12. Do., bullahs „	.....	.....	.....
13. Estimated value of rafts Rs.	.....	.....	.....
14. Tollage on boats „	26,618-0-6	7,973-11-0	34,591-11-6
15. Compounded tollage on boats Rs.	.....	.....	.....
16. Tollage on rafts „	.....	.....	.....
17. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-4·79
18. Ditto on rafts per 100 cubic feet Rs.	.....	.....	.....

	Rs. A. P.
Total tollage of month—24+25+26 ...	34,591 11 6
Total tollage of same month last year ..	43,658 14 0

Memorandum of Tollage.

	Rs. A. P.
1. Balance not recovered on the 1st of the month ...	839 12 9
2. Tollage per month ...	34,591 11 6
3. Total	35,431 8 3
4. Amount paid into Treasury during the month	34,135 12 6
5. Balance due at the end of the month ...	1,295 11 9

ARTICLES OF TRAFFIC INCLUDED IN ITEM 8 (MISCELLANEOUS).

CALCUTTA AND EASTERN CANALS.

Number of tons or rafts.	Description.	Total Government and Private.				Private.		Remarks.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
1,284	(*a*) Jute ...	23,814	.....	23,814	30,00,510	23,814	30,00,510	
65	(*b*) Jaggery ...	542	7	549	61,500	549	61,500	
3	(*c*) Sugar ...	24	.....	24	6,075	24	6,075	
5	(*d*) Tobacco ...	8	19	27	5,250	27	5,250	
889	(*e*) Fish ...	133	3	136	38,106	136	38,106	
32	(*f*) Hides ...	19	.....	19	4,170	19	4,170	
54	(*g*) Poultry ...	7	.....	7	5,247	7	5,247	
93	(*h*) Hay and straw ...	483	.....	483	12,012	483	12,012	
116	(*j*) Oil ...	.....	1,793	1,793	2,51,000	1,793	2,51,000	
30	(*k*) Earthenware ...	2	.....	2	595	2	595	
654	(*m*) Other miscellaneous ...	3,832	312	4,144	4,92,470	4,144	4,92,470	
3,225	Total Miscellaneous...	28,864	2,134	30,998	38,76,935	30,998	38,76,935	

PUBLIC WORKS DEPARTMENT, IRRIGATION BRANCH, BENGAL.

SOUTH-WESTERN CIRCLE.

TOLLY'S NULLAH.

Statement showing quantities of Goods carried during the month of November 1889.

Number of boats or rafts.	Description.	Total Government and Private. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	Private. Quantity. Tons.	Value. Rupees.	Remarks.
871	1. Grain ...	2,809	.....	2,809	2,20,600	2,809	2,20,600	
10	2. Cotton ...	66	.....	66	33,300	66	33,300	
2	3. Oilseeds ...	34	.....	34	3,325	34	3,325	
62	4. Salt ...	535	295	830	87,187	830	87,187	
.....	5. Piece-goods ...	.....	.....	.....	.....	.....	.....	
.....	6. Metal ...	.....	.....	.....	.....	.....	.....	
387	7. Building materials	3,797	7	3,804	15,912	3,804	15,912	
1,068	8. Miscellaneous* ...	3,546	70	3,616	4,62,827	3,616	4,62,827	
250	9. Fuel ...	2,735	43	2,778	22,772	2,778	22,772	
3 rafts	10. Timber ...	2,175 c. ft.	190 c. ft.	2,365 c. ft.	5,912	2,365 c. ft.	5,912	
7 „	11. Bamboos ...	225 „	.....	225 „	37	225 „	37	
2,649 & 0 rafts.	12. Total ...	13,522 & 2,400 c. ft	415 & 190 c. ft.	13,937 & 2,590 c. ft.	8,51,872	13,937 & 2,590 c. ft.	8,51,872	
4,739 & 8 rafts.	13. Total of same month last year ...	19,745 & 6,880 c. ft.	752 & 2,735 c. ft.	20,497 & 9,615 c. ft.	14,05,133	20,497 & 9,615 c. ft.	14,05,133	

* For details, see next page.

	Up.	Down.	Total.
4. Total number of boats plying cargo ... No.	2,565	84	2,649
4*a*. Ditto empty boats „	1,174	226	1,400
5. Total number of boats plying passenger ... No.	684	21	705
6. Total registered tonnage, cargo ... Tons	38,012	2,685	40,697
7. Total registered tonnage, passenger ... Tons	1,926	81	2,007
8. Ton-mileage	353,608	42,960	396,568
9. Estimated value of cargo Rs.	8,04,145	41,778	8,45,923
10. Number of passengers No.	8,371	210	8,581
11. Rafts, bamboos C. ft.	225	.....	225
12. Do., bullahs „	2,175	190	2,365
13. Estimated value of rafts Rs.	5,474	475	5,949
14. Tollage on boats „	6,436-9-6	678-1-6	7,114-11-0
15. Compounded tollage on boats ... Rs	.....	.....	.....
16. Tollage on rafts „	18-2-6	13-8-0	31-10-6
17. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-3·44
18. Ditto on rafts per 100 cubic feet ... Rs.	.....	.....	1-3-6

	Rs.	A.	P.
Total tollage of month—24+25+26 ...	7,146	5	6
Total tollage of same month last year ...	11,898	4	0

Memorandum of Tollage.

	Rs.	A.	P.
1. Balance not recovered on the 1st of the month ...	270	11	3
2. Tollage per month ...	7,146	5	6
3. Total	7,417	0	9
4. Amount paid into Treasury during the month ...	7,183	5	9
5. Balance due at the end of the month ...	233	11	0

ARTICLES OF TRAFFIC INCLUDED IN ITEM 8 (MISCELLANEOUS).
TOLLY'S NULLAH.

Number of boats or rafts.	Description.	Total Government and Private.				Private.		Remarks.
		Quantity—Tons.			Value.	Quantity.	Value	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
105	(*a*) Jute ...	465	.....	465	58,590	465	58,590	
54	(*b*) Jaggery ...	389	.....	389	43,600	389	43,600	
.....	(*c*) Sugar ...	.....	.....	.....	.....	.....	.....	
16	(*d*) Tobacco. ...	86	29	115	22,575	115	22,575	
135	(*e*) Fish ...	9	7	16	4,614	16	4,614	
.....	(*f*) Hides ...	.....	.....	.....	.....	.....	.....	
10	(*g*) Poultry ...	5	.....	5	1,122	5	1,122	
399	(*h*) Hay and straw...	603	.....	603	14,787	603	14,787	
53	(*j*) Oil ...	593	.....	593	83,000	593	83,000	
70	(*k*) Earthenware ...	94	12	106	1,484	106	1,484	
226	(*m*) Other miscellaneous.	1,302	22	1,324	2,33,055	1,324	2,33,055	
1,068	Total Miscellaneous...	3,546	70	3,616	4,62,827	3,616	4,62,827	

ABSTRACT FOR THE MONTH OF NOVEMBER 1889, AS COMPARED WITH THE CORRESPONDING MONTH OF THE PREVIOUS YEAR.

	Traffic, 1889-90.		Traffic, 1888-89.	
	During the month.	To end of the month.	During the month.	To end of the month.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Calcutta and Eastern Canals ...	34,591 11 6	1,91,202 4 3	43,658 14 0	2,35,377 13 6
Tolly's Nullah	7,146 5 6	56,073 4 6	11,898 4 0	81,362 10 0
Total ...	41,738 1 0	2,47,275 8 9	55,557 2 0	3,16,740 7 6

Calcutta,
The 4th February 1890.

G. A. G. Shawe,
Under-Secretary to the Govt. of Bengal.

CIRCULAR AND EASTERN CANALS.

Approximate Return of Traffic for the week ending Saturday, the 1st February 1890, as compared with the corresponding week of the previous year.

Nature of Cargo.	Week ending Saturday, the 1st February 1890.			Week ending Saturday, the 2nd February 1889.		
	Number of boats.	Weight of cargo.	Tollage.	Number of boats.	Weight of cargo.	Tollage.
	No.	Mds.	Rs.	No.	Mds.	Rs.
Rice and paddy	1,780	3,82,110	6,271	1,797	3,64,825	6,342
Jute	177	1,15,075	2,110	109	85,125	1,536
Firewood	87	53,400	806	146	83,725	1,222
Other articles	856	1,73,495	2,605	1,205	3,27,255	3,710
Total ...	2,900	7,24,080	11,792	3,257	8,60,930	12,810

Weekly Return of Traffic Receipts on Indian Railways.

EAST INDIAN RAILWAY.

Approximate Return of Traffic for week ended 25th January 1890, on 1,525½ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	*315,167	*3,48,082 6 0	25,13,601 10	5,56,499 3 0	20,612 10 0	9,25,194 3 0	69,719½	90,031½	159,751
Or per mile of railway ...	.....	228 2 10	.....	364 12 9	13 8 2	606 7 9	.....	.....	.....
For previous 3 weeks of half-year	636,976	7,33,240 3 0	66,47,006 20	15,33,598 15 0	50,474 0 0	23,17,313 2 0	166,315½	236,857	403,172½
Total for 4 weeks ...	952,143	10,81,322 9 0	91,60,659 30	20,90,098 2 0	71,086 10 0	32,42,507 5 0	236,034½	326,888½	562,923½
Comparison.									
Total for corresponding week of previous year	238,113½	2,68,219 2 11	20,21,806 30	6,31,838 6 9	14,677 12 4	9,34,735 6 0	65,189	98,610	163,799
Per mile of railway corresponding week of previous year	.....	188 14 11	.....	414 3 0	9 9 11	612 11 10	.....	.....	.....
Total to corresponding date of previous year	870,308	10,42,996 13 9	1,05,53,089 20	23,24,417 4 0	56,080 0 10	34,22,594 2 7	242,702	372,146	614,848

* The increase in coaching traffic is due to the "Magh Mela" held at Allahabad.

Approximate Statement of gross receipts of the East Indian Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 11 January 1889.			Receipts for week ending 25th January 1890.			Total receipts from 1st April 1888 to 26th January 1889.		Total receipts from 1st April 1889 to 25th January 1890.			Total increase in 1889.	Total decrease in 1889
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
1,525½	9,34,735	613	1,525½	9,25,194	606	1,525½	3,59,02,819	548	1,525½	3,58,03,574	546	.....	1,58,745

PATNA-GYA STATE RAILWAY.

Approximate Return of Traffic for week ended 25th January 1890, on 57½ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	13,533	6,936 3 0	34,816 20	2,854 10 0	55 2 0	9,545 15 0	1,790	604	2,394
Or per mile of railway	247	121 4 2	609 0	44 10 7	0 15 5	164 14 2	.....	.....	.....
For previous 3 weeks of half-year	33,749	17,535 3 0	86,392 30	5,969 2 0	124 13 0	23,529 2 0	4,464	2,258	6,722
Total for 4 weeks ...	47,282	24,471 6 0	1,21,219 10	8,823 12 0	179 15 0	33,075 1 0	6,254	2,863	9,116
Comparison									
Total for corresponding week of previous year	11,244	5,917 10 7	62,035 20	2,067 12 0	29 9 0	8,014 15 7	1,947	1,135	3,082
Per mile of railway corresponding week of previous year ...	197	103 7 3	1,084 30	36 2 5	0 8 3	140 1 11	.....	.....	.....
Total to corresponding date of previous year	46,044	24,231 12 5	1,32,237 20	6,887 4 0	131 11 9	31,250 12 2	7,109	3,471	9,580

Approximate Statement of gross receipts of the Patna-Gya State Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 26th January 1889.			Receipts for week ending 25th January 1890.			Total receipts from 1st April 1888 to 26th January 1889.			Total receipts from 1st April 1889 to 25th January 1890.			Total increase in 1890.	Total decrease in 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
57½	8,015	140	57½	9,546	167	57½	4,00,009	163	57½	4,15,506	169	15,497	.....

TARKESSUR BRANCH RAILWAY.

Approximate Return of Traffic for week ended 25th January 1890, on 22½ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	20,713	5,266 1 0	12,418 30	435 4 0	7 3 0	5,708 8 0	900	84	984
Or per mile of railway	.....	236 10 10	.....	19 9 0	0 5 2	256 9 0	.....	.....	.....
For previous 3 weeks of half-year	48,410	12,163 7 0	27,685 10	1,097 4 0	18 12 0	13,279 7 0	2,321	165	2,486
Total for 4 weeks ...	69,123	17,429 8 0	40,104 0	1,532 8 0	25 15 0	18,987 15 0	3,221	249	3,470
Comparison.									
Total for corresponding week of previous year	20,073½	5,152 2 10	7,783 30	296 9 0	9 8 0	5,458 3 10	895	73	968
Per mile of railway corresponding week of previous year ...	.....	231 8 11	.....	13 5 3	0 6 10	245 5 0	.....	.....	.....
Total to corresponding date of previous year	71,067½	17,745 7 10	34,068 10	1,199 1 0	23 11 9	18,968 4 7	3,339	297	3,636

Approximate Statement of gross receipts of the Tarkessur Branch Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 26th January 1889.			Receipts for week ending 25th January 1890.			Total receipts from 1st April 1888 to 26th January 1889.			Total receipts from 1st April 1889 to 25th January 1890.			Total increase in 1890.	Total decrease in 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
73½	5,458	245	22½	5,709	257	22½	2,25,351	236	22½	2 23,964	233	.....	2,387

EASTERN BENGAL STATE RAILWAY.

(INCLUDING N. B., DACCA, K. AND D., AND ASSAM-BEHAR SECTIONS.)

Approximate Return of Traffic for week ended 18 h January 1890, on 747 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated), including steam-boat.	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	146,080	*76,880 0 0	6,88,880 0	1,60,500 0 0	15,030 0 0	2,52,410 0 0	22,958	36,949	59,907
Or per mile of railway	196	103 0 0	923 0	215 0 0	*2 0 0	320 0 0	... ..	.....	.....
For previous 2 weeks of half-year	270,740	1,18,280 0 0	9,71,200 0	2,36,940 0 0	26,810 0 0	3,81,980 0 0	36,369	58,769	95,138
Total for 3 weeks	416,820	1,95,110 0 0	16,60,080 0	3,97,440 0 0	41,840 0 0	6,34,390 0 0	59,327	95,718	155,045
COMPARISON									
Total for corresponding week of previous year	137,037	67,527 0 0	5,35,573 0	1,20,468 0 0	13,981 0 0	2,01,076 0 0	21,553	27,430	48,983
Per mile of railway corresponding period of previous year	205	100 0 0	796 0	179 0 0	*2 0 0	281 0 0	.....	.....	.....
Total to corresponding date of previous year ..	395,830	1,77,804 0 0	13,57 976 0	3,18,863 0 0	40,034 0 0	5,36,201 0 0	53,079	82,560	141,239

* Excluding steamer earnings.

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Eastern Bengal State Railway.

Receipts for week ending 19th January 1889.			Receipts for week ending 18th January 1890.			Total receipts from 1st April 1888 to 19th January 1889.			Total receipts from 1st April 1889 to 18th January 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
673	2,01,076	300	747	2,52,410	338	673	87,78,590	311	724	*92,72,553	305	4,93,963	...

* Audited up to week ending 23rd November 1889.

BENGAL CENTRAL RAILWAY.

Approximate Return of Traffic for week ended 18th January 1890, on 125 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	24,200	9,740 0 0	40,210 0	2,610 0 0	80 0 0	12,430 0 0	3,736	1,936	5,672
Or per mile of railway	194	78 0 0	322 0	21 0 0	.....	99 0 0	....	.....	.....
For previous 2 weeks of half-year	48,450	16,840 0 0	67,350 0	4,330 0 0	130 0 0	21,300 0 0	5,870	3,044	8,914
Total for 3 weeks ...	72,650	26,580 0 0	1,07,560 0	6,940 0 0	210 0 0	33,730 0 0	9,606	4,980	14,586
COMPARISON.									
Total for corresponding week of previous year	25,785	9,777 0 0	46,875 0	2,339 0 0	56 0 0	12,162 0 0	3,736	1,940	5,676
Per mile of railway corresponding period of previous year ...	206	78 0 0	375 0	19 0 0	.....	97 0 0	.....	.....	.....
Total to corresponding date of previous year	73,003	25,210 0 0	1,73,645 0	6,029 0 0	2,566 0 0	33,745 0 0	10,161	5,260	15,421

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Bengal Central Railway.

Receipts for week ending 19th January 1889.			Receipts for week ending 18th January 1890.			Total receipts from 1st April 1889 to 19th January 1889.			Total receipts from 1st April 1889 to 18th January 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
125	12,162	97	125	12,430	99	125	5,79,900	110	125	*6,06,207	115	26,307	.....

* Audited up to week ending 23rd November 1889.

DACCA STATE RAILWAY.

Approximate Return of Traffic for week ended 18th January 1890, on 86 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	16,250	5,630 0 0	30,210 0	4,300 0 0	120 0 0	10,050 0 0	2,404	1,280	3,684
Or per mile of railway	189	66 0 0	456 0	50 0 0	1 0 0	117 0 0	.....	.....	.....
For previous 2 weeks of half-year	20,270	11,290 0 0	57,040 0	5,740 0 0	500 0 0	17,530 0 0	4,036	1,088	5,124
Total for 3 weeks ...	45,520	16,920 0 0	96,850 0	10,040 0 0	620 0 0	27,580 0 0	6,440	2,368	8,808
Comparison.									
Total for corresponding period of previous year	14,457	4,322 0 0	21,278 0	2,256 0 0	63 0 0	6,641 0 0	2,479	625	3,104
Per mile of railway corresponding period of previous year	168	50 0 0	247 0	26 0 0	1 0 0	77 0 0	.....	.....	.....
Total to corresponding date of previous year	41,770	12,478 0 0	33,191 0	3,571 0 0	339 0 0	16,388 0 0	6,763	1,695	8,458

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Dacca State Railway.

Receipts for week ending 19th January 1889.			Receipts for week ending 18th January 1890.			Total receipts from 1st April 1888 to 19th January 1889.			Total receipts from 1st April 1889 to 18th January 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
86	6,611	77	86	10,050	117	86	2,39,862	66	86	*3,10,814	87	70,952	.....

* Audited up to week ending 23rd November 1889.

NALHATI STATE RAILWAY.

Approximate Return of Traffic for the week ending 25th January 1890 on 27¼ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	3,062	1,060 0 0	7,377 0	525 0 0	7 0 0	1,592 0 0	509	254	763
Or per mile of railway ...	112	39 0 0	271 0	19 0 0	.....	58 0 0	.....	.....	.....
For previous 2 week of half-year	7,719	2,692 0 0	47,505 0	2,789 0 0	44 0 0	5,525 0 0	1,309	653	1,962
Total for 3 weeks ...	10,781	3,752 0 0	54,882 0	3,314 0 0	51 0 0	7,117 0 0	1,818	907	2,725
Comparison.									
Total for corresponding week of previous year	3,178	1,117 0 0	17,241 0	832 0 0	32 0 0	1,981 0 0	509	636	1,145
Per mile of railway corresponding week of previous year ...	117	41 0 0	633 0	31 0 0	1 0 0	73 0 0	.....	.....	.....
Total to corresponding date of previous year	11,781	4,303 0 0	58,029 0	2,937 0 0	71 0 0	7,311 0 0	1,890	2,003	3,893

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Nalhati State Railway.

Receipts for week ending 26th January 1889.			Receipts for week ending 25th January 1890.			Total receipts from 1st April 1888 to 20th January 1889.			Total receipts from 1st April 1889 to 25th January 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
27¼	1,081	73	27¼	1,592	58	27¼	82,552	74	27¼	81,905	73	.....	647

TIRHOOT STATE RAILWAY.

Approximate Return of Traffic for the week ending 25th January 1890, *on* 273 *miles open.*

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
al traffic for the week	47,791	19,003 0 0	2,73,789 0	31,303 0 0	5,441 0 0	55,807 0 0	6,234	8,892	15,126
ber mile of railway ...	175	70 0 0	1,003 0	114 0 0	3 0 0	187 0 0*	.....	.....	.....
previous 2 weeks of half-year	114,179	52,899 0 0	5,66,480 0	62,819 0 0	12,559 0 0	1,28,277 0 0	15,106	20,741	35,907
Total for 3 weeks ...	162,270	71,902 0 0	8,40,269 0	94,122 0 0	18,000 0 0	1,84,084 0 0	21,400	29,633	51,033
COMPARISON.									
al for corresponding week previous year	37,973	13,580 0 0	1,42,091 0	13,247 0 0	2,795 0 0	29,623 0 0	5,477	5,887	11,364
mile of railway correspond-g week of previous year .	139	50 0 0	523 0	48 0 0	1 0 0	99 0 0*	.....	.....	.....
al to corresponding date of evious year	141,627	50,845 0 0	5,09,451 0	46,177 0 0	11,486 0 0	1,08,508 0 0	19,929	20,598	40,527

* Steam-boat earnings excluded in calculating "Total earnings per mile of Railway."

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Tirhoot State Railway.

...ipts for week ending 26th January 1889			Receipts for week ending 25th January 1890			Total receipts from 1st April 1888 to 26th January 1889.			Total receipts from 1st April 1889 to 25th January 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
...an ...ge. ...d.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs	Rs		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
3	29,623	109	273	55,807	204	264·49	13,58,011	125	273	16,67,289	149	3,09,278	.....

DARJEELING-HIMALAYAN RAILWAY COMPANY, LIMITED.

	Rs.
Approximate earnings for first 11 days of January 1890	9,482
Corresponding period of last year	8,017
Increase	1,465
	Miles.
Miles open first 11 days of January 1890	51
Corresponding period of last year	51
	Rs. A. P.
Receipts per mile open first 11 days of January 1890	185 14 9
Corresponding period of last year	157 3 1
Increase	28 11 8

Printed and published by Edwin Morris Lewis, at the Printing Office of the Bengal Secretariat, Writers' Buildings, in the City of Calcutta, 5th February 1890.

[REGISTERED No. 29.]

No. 7 of 1890.

SUPPLEMENT TO
The Calcutta Gazette.

WEDNESDAY, FEBRUARY 12, 1890.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE *may receive the* SUPPLEMENT *separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.*

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ANNUAL AWARD OF A MEDAL TO THE MOZUFFERPORE ZILLAH SCHOOL.

GENERAL DEPARTMENT—EDUCATION.

Calcutta, the 5th February, 1890.

RESOLUTION.

READ—

A letter from the Commissioner of Patna, No. 180G, dated the 22nd March, 1889.

Read also—

A letter from the Director of Public Instruction, No. 2023, dated the 5th April, 1889.

IN commemoration of the visit of the Lieutenant-Governor to Sursund in the district of Mozufferpore, Mussamut Dulhin Golab Kuer and her son-in-law, Babu Damodar Deb Narain Singh, have paid into the Mozufferpore Treasury the sum of Rs. 900 for investment in Government securities as an endowment for the annual award of a medal, to be designated the "Bayley Medal," to the student of the Mozufferpore Zillah School obtaining the highest marks in Sanskrit at the University Entrance Examination of each year. The Lieutenant-Governor is pleased to accept the donation, and tenders his thanks to the donors for their liberality. The Magistrate of Mozufferpore will be the administrator of the fund.

ORDER.—Ordered, that a copy of this Resolution be forwarded to the Commissioner of Patna for information and for communication to the donors, and to the Director of Public Instruction for information.

Ordered also, that a copy of this Resolution be published in the *Calcutta Gazette*.

By order of the Lieutenant-Governor of Bengal,

P. NOLAN,

Secretary to the Government of Bengal.

INCIDENCE OF TOLLS IN THE CIRCULAR AND EASTERN CANALS.

PUBLIC WORKS DEPARTMENT, BENGAL,—IRRIGATION.

RESOLUTION.

No. 238 *I.A.*

Dated Calcutta, the 11th February 1890.

READ—

(1) Memorial from the Bengal National Chamber of Commerce, dated 17th November 1887.
(2) Letter No. 2455T., from Agent, Bengal Central Railway, dated 24th November 1887.
(3) Bengal Government Notifications Nos. 349-350, dated 17th September 1889.
(4) Letter from Manager, Eastern Bengal Railway, No. 821, dated 19th October 1889.
(5) Bengal Government Notification No. 382, dated 21st October 1889.
(6) Letter from Secretary, Young Men's Association, Senhati, dated 6th November 1889.
(7) Letter from Messrs. Hoare, Miller and Company, No. 904, dated 10th December 1889.
(8) Bengal Government Notification No. 455, dated 17th December 1889.

In regard to the complaints which have been made against the tolls charged on boats using the channels included in the "Circular Canal Route," the Lieutenant-Governor has arrived at the conclusion that it is advisable to enquire into the system of measurements and incidence of tolls charged under the rules and notifications now in force.

2. *It is resolved* therefore to appoint, for the above purpose, a Commission consisting of—

Major McArthur, R.E. ... ... *President.*
Mr. W. C. Boyce, District Traffic Superintendent, Eastern Bengal Railway ... ... } *Members.*
Baboo Sitanath Roy, Honorary Secretary, Bengal National Chamber of Commerce ... ... }

3. The enquiry will embrace the following points—

1. Present system of boat measurement, and whether it can be improved in the direction of (*a*) greater accuracy of gross tonnage or (*b*) ascertaining net tonnage.
2. The incidence of existing rates on the goods carried in the Canals; whether the rates should be revised; and whether differential rates should be introduced or not.
3. The boundaries within which the tolls are levied.
4. The practicability of levying tolls on the basis of "challans" of the merchants or others whose goods are carried.

ORDER.—Ordered that copies of this Resolution be sent to the President and members named to serve on the Commission for information and guidance, and to the Revenue, Appointment and Financial Departments of this Government, the Board of Revenue, the Commissioner of the Presidency Division, and the Examiner of Public Works Accounts, Bengal, for information.

By order of the Lieutenant-Governor of Bengal,

J. M. McNEILE, *Col.*, R.E.,
Secretary to the Government of Bengal,
P. W. Dept.

RESOLUTION ON THE REPORT OF THE COMMITTEE APPOINTED TO ENQUIRE INTO THE ADMINISTRATION OF THE SONE CANALS.

No. 2061.

Government of Bengal.

PUBLIC WORKS DEPARTMENT.

Dated Calcutta, the 4th February 1890.

RESOLUTION.

READ—

1. Resolution No. 1884I., dated Calcutta, the 11th of November 1887, by the Government of Bengal, Public Works Department, appointing a Committee to enquire into the Administration of the Sone Canals.
2. Report, dated the 13th March 1888, of the Committee appointed to enquire into the Administration of the Sone Canals.
3. Note, dated the 14th of January 1890, by Colonel C. W. I. Harrison, R.E., Chief Engineer, Bengal, on the above-mentioned report.
4. Minute, dated the 15th June 1888, by the Hon'ble F. M. Halliday.
5. Letter, dated the 25th June 1888, from the Board of Revenue, Lower Provinces.
6. Letter, dated the 30th June 1888, from Mr. L. H. Mylne, of Behoea, Shahabad.
7. Note, dated the 10th July 1888, by the Hon'ble Mr. Nolan, on the report of the Committee appointed to enquire into the Administration of the Sone Canals.
8. Letter No. 849I., of date the 31st August 1888, from Mr. A. B. Power, Collector of Shahabad.
9. Note, dated the 14th of December 1888, by Mr. C. W. Odling, Superintending Engineer, Sone Circle, on irrigation operations from the Sone Canals during the *kharif* season of 1888-89.
10. Note, dated the 4th of February 1889, by Mr. H. Luson, C.S., upon crop experiments in canal-irrigated *dhan* taken in the Sone Circle during the *kharif* season of 1888-89.
11. Report, dated the 20th of March 1889, by Mr. H. Luson, C.S., upon certain points connected with the administration of the Sone Canals.
12. Pamphlet by Baboo Kandhji Sahai, B.A., B.L., on certain aspects of the Sone irrigation question, Dinapore, 1889, received with a letter, dated 26th June 1889.
13. Revenue report, dated the 18th September 1889, by the Superintending Engineer, on the Sone Canals for the year 1888-89.
14. Note, dated the 12th of January 1890, by Mr. C. W. Odling, Superintending Engineer, Sone Circle, on irrigation operations from the Sone Canals during the *kharif* season 1889-90.
15. Note, dated the 14th January 1890, by Mr. C. W. Odling, Superintending Engineer, on Drainage Works carried out and still required in connection with the Sone Canals.

The Lieutenant-Governor, when on tour in Behar in November 1887, received a memorial, signed by certain leading residents of the Shahabad and Patna districts, complaining of the system under which lands irrigated by the Sone Canals were assessed and the water-rates collected. Sir Steuart Bayley travelled by road through the part of the area irrigated in which complaints were most numerous and by steamer down the Buxar Canal. On a full consideration of the allegations made in the memorial and those contained in separate letters received from influential landholders, His Honour came to the conclusion that it was desirable to appoint a Committee to examine into the working of the entire system, with a view to provide remedies, where possible, for admitted defects, and to improve the rules and, if necessary, the law under which the system was administered.

2. The Committee, which was composed of Mr. H. J. S. Cotton, C.S., as President, with Mr. C. W. Odling, M.E, M.I.C.E., and Rai Jai Prokash Lall, Bahadur, as Members, met at Arrah on the 1st of December 1887, and, after local investigations extending over those parts of the Shahabad, Patna and Gya districts traversed by the canals, submitted a report, dated the 13th March 1888, signed by all the Members of the Committee, but accompanied by

dissents by Mr. C. W. Odling and Rai Jai Prokash Lall, Bahadur, on material points. The report may be taken to be in the main that of Mr. Cotton, the President, who is, however, in regard to most of the recommendations supported by the Departmental member of the Committee.

3. The report of the Committee is clear and well arranged and accompanied by a series of appendices containing a record of the evidence, written or oral, on which the conclusions drawn and recommendations made are based. Very considerable delay has occurred in dealing with the report. The recommendations made were submitted to the criticism of various local officers, but important action was taken at once to carry out some of the Committee's proposals concerning which there was no room for doubt. A series of practical experiments touching on the question of yield of crops and indirectly on that of profit obtainable from irrigation were carried out under the superintendence of Mr. Luson. The Chief Engineer has paid two extended visits to Shahabad to watch the working of the system at different seasons, and he has now recorded the note quoted at the head of the Resolution. In that note he has explained the origin of the system pursued, and has noticed* the changes which have been introduced since the Committee was appointed—changes which suffice to justify the appointment of the Committee, and which show how beneficial their principal recommendations have been. The note brings together on various points the facts and considerations justifying the action of the Department where it has been impugned, and after explaining the important effect which the use of canal water has had in substituting paddy cultivation for that of *rabi* crops over a large area, and the bearing of this fact on the main questions at issue, it discusses the proposed alterations and explains how far, in the opinion of the Chief Engineer, the recommendations of the Committee are in themselves feasible and desirable as the law now stands.

* Paragraphs 17, 24, 56, 64, 69, 72 and 116.

4. The area irrigable by the Sone Canals, in the *kharif* season at least, is practically measured by the water supply procurable. Some 1,300,000 acres are commanded, of which it would be possible, with the supply of water ordinarily available in the river Sone, to irrigate 300,000 acres in the *kharif* and probably the same area in the *rabi* season. When the canals were in course of construction it was found that the lands commanded were about equally divided between *kharif* and *rabi* crops, and it was not anticipated that any change in the nature of the crop would follow the advent of irrigation with canal water. It was, in fact, assumed that of the area irrigated half would be cultivated with *kharif* and half with *rabi* crops. Indeed, the fear expressed by Sir G. Campbell in 1871 was that there would not be a sufficient supply of water available for the irrigation of the winter crops, and he urged that the canal should be designed with reference to the minimum supply procurable from the river Sone in that season in the driest of years. It was expected that a higher water-rate would be obtainable from *rabi* than from *kharif* cultivation.

5. The canals and distributaries were ordinarily run on the ridges, the lands bordering which, being high, were usually cultivated with winter or *rabi* crops. So soon as irrigation from the canals was commenced, there was a rapid change in the character of the cultivation. Wherever canal water is regularly available *rabi* crops have disappeared, and rice has taken their place. In the opinion of a landholder peculiarly well qualified to judge on the point, nothing but the absolute refusal of canal water for paddy would compel the ryots now to forego the cultivation of that crop. This change, which in the earlier years of canal irrigation was in process of development, added much to the difficulties necessarily experienced by canal officers in introducing a satisfactory system of irrigation.

6. An endeavour was in the first instance made to follow, as far as the law admitted, the system adopted in the Upper Provinces. There no written application for water is necessary, but, an outlet once fixed, cultivators are, subject to a system of rotation as regards supply, permitted to take water much as they please. The discharge of the outlets of a village are fixed and ordinarily do not admit of more than one-seventh of the cultivated area being under *kharif* crops requiring canal water. If a greater proportion is so cultivated it is at the risk of the villagers, who are consequently careful to limit the cultiva-

tion within the area for which the supply allowed is in dry years, with the utmost economy, sufficient.

In Bengal no attempt was made to limit the area to be irrigated in any village, and whilst written applications were required, but little care was taken to restrict the supply of water to the areas included therein. The departmental arrangements failed to provide against waste and against the water finding its way to the lands of other persons than those who had applied for it. The cultivators themselves took little thought in the matter, but relied on the supply which was enough for rice transplantation being equally sufficient for maturing the crops originally watered, irrespective of rainfall. If no rain fell in the *hatiya*, not only was more water required for crops already irrigated, but there was a further demand for rice sown on low lands, which then also looked to the canals for a supply sufficient to save the crop.

Whenever the supply of the outlet did not suffice for the entire area requiring irrigation, the complaint was of 'deficiency and irregularity of supply.' If rain fell whilst the crops were being or had lately been watered for the first time, disputes arose as to whether water-rates were leviable. The objection was emphasized when the fields assessed were not included in a written application since the case then became one of 'unauthorized irrigation.'

7. The recommendations made by the Committee involve not only changes in the system of administration followed, but reductions on various grounds in the sums charged as water-rates. It is argued in the report that the experiments yearly made as to the yield of crops irrigated by the canals and other means cannot be relied on, that the productive powers of certain descriptions of soil deteriorated after canal water had been used for a few years, that crops produced by the aid of canal water are inferior compared to those yielded on lands irrigated from *aharas*, and that the natural irrigation facilities formerly available had been destroyed or injured by the canals. Those were points which could only be satisfactorily investigated by an officer who could devote his whole time to the detailed investigations necessary and under whose directions a complete series of crop experiments could be carried out.

8. The services of a covenanted civilian, Mr. Luson, were made available. That officer had previously acted as Joint-Magistrate of Shahabad, and was at the time of his deputation Officiating Collector of Gya: so that he already possessed some knowledge of the districts traversed by the canals, and was therefore at once, when relieved on the 21st October 1889, able to commence the detailed work required. His report is dated the 20th March 1889. There was a total failure of the *hatiya* and *chitra* rains in 1888—in fact there was practically no rain from the 7th of September to the 29th of November, so that the strain on the canals was as great as it is possible that it can ever be in future, affording an excellent opportunity for determining the area they can satisfactorily irrigate under the most unfavourable circumstances. There has again in 1889 been a partial failure in the autumn rains, so that the result of two years' irrigation operations, in which the most prominent errors originally committed had been corrected, can be considered. Colonel Harrison spent October 1888 and May 1889 in studying the subject on the spot.

9. There were, however, certain defects brought to light by the Committee which admitted of reform at once. The chief of these were the failure of canal officers to exercise sufficient control over the supply of water through the outlet, and to take effective measures to prevent irrigation without permit. With the approval of the Chief Engineer, the Superintending Engineer, on the 21st of March 1888, issued circular orders pointing out in what respects an alteration in practice was required, and also in what points sufficiently minute attention had not been paid to the law and the rules. Canal officers were directed, when at head-quarters, to receive complaints daily and to register each complaint separately, though several might be received on the same day from the same village and raising objection to the demand for identical causes. Instructions were given that five-year leases were not to be granted unless proper village channels actually existed when the lease was sanctioned, and that even the deposit of funds for their construction would not be accepted as a sufficient compliance with the rule, since from various reasons there might be delay in completing them. Directions were given

that the position and size of the outlets from which water was to be supplied should be endorsed on the permit. No alteration was to be made in the capacity of any outlet during the currency of the lease. The orders regarding unauthorized irrigation were of a nature to almost entirely stop assessments under that head. It was required that 'benefit' should be established, and also that the person by whose act or neglect the unauthorized irrigation occurred could not be identified. Assessment was prohibited where canal servants were at fault, or where unauthorized irrigation was effected from aharas filled or partly filled with canal water. The responsibility of the Canal officer for the supply through the outlet was affirmed, and permits were directed to be refused where the blocks proposed to be leased were so situated that unauthorized irrigation was probable. It was directed that a discharge through the outlet sufficient only for the area to be irrigated should be arranged for. Attention was invited to the desirability of obtaining the signature of the *lambardar* to the shudkar or register of irrigation when the first watering was completed.

These orders were sufficient to rectify the chief defects pointed out by the Committee, and their enforcement has almost put a stop to complaints regarding 'unauthorized irrigation,' in respect of which most feeling had been shown. They suffice to justify the work of the Committee and the utility of most of its recommendations. Moreover, though the rainfall during the two following seasons was scanty, the supply of water was, with few exceptions, admittedly sufficient. Thus the causes of the complaints made before the Committee regarding the proceedings of assessing officers were completely or nearly completely removed. The Collectors concerned took similar precautions to prevent the continuance of abuses on the part of the collecting staff.

10. The point in which the greatest interest was manifested is the rate to be charged for rice irrigation. The present charge for annual leases is Re. 1-14, while for leases for five years the charge is Re. 1-4 per bigha or Rs. 2 per acre, and it is recommended by the Committee that this latter rate shall be reduced to Re. 1 per bigha and that of the annual lease shall also be modified. In a pamphlet on the subject, written by the Secretary of the Landholders Committee, lately issued, this reduction is described as being "the most important, and without which, in the words of the Commission, no improvement will be accepted as an adequate outcome of the results of the Commission." The grounds on which the reduction is advocated are those described in paragraph 7 of this Resolution, and are thus summarized in paragraph 276 of the Report:—

> In deciding this question, all the circumstances of the Sone irrigation must be considered. It must be remembered that canal irrigation is unpopular. It is alleged that Sone water is injurious to the soil, to man and beast. It must never be forgotten that an old system of irrigating from aharas and pynes prevailed before its introduction, which the ryots declare was more beneficial to them than the present system which has superseded it. It is admitted that well irrigation is more beneficial to the crops than canal water. The country is said to be water-logged; the health of the people is said to have suffered. The vigorous and often injudicious assessment of water, combined with the energetic realization of the existing rates has embittered both zemindars and ryots.

11. It is probable that the Committee were right in supposing that, at the time when they made their enquiry, there was considerable bitterness of feeling both in regard to the assessment of unauthorized irrigation (which has since for practical purposes been abandoned), and in regard to the rigour with which, owing to arrears having been allowed previously to accumulate to a most injudicious extent, collections had recently been enforced. This bitterness has, owing to the reforms recently introduced, now subsided, and a careful consideration of all the circumstances in the light of Mr. Luson's enquiry of subsequent experience, and of the opinions of the local officers, convinces the Lieutenant-Governor that in the paragraph above quoted the Committee were to some extent misled upon questions of fact, and that the recommendations which followed are consequently not such as the Government should accept.

So far from canal irrigation being unpopular, the area irrigated in the *kharif* season of 1888-89 was only circumscribed by the quantity of water available. During the current year, 1889-90, the demand has been practically of the same character. Despite the lapse of five-year leases for 65,500 acres, the area so leased has increased. The area for which leases have been cancelled, though no single application has been refused, is altogether insignificant. In the face

of these facts it is difficult to see how canal irrigation can still be considered to be unpopular.

The experiments in regard to *good* crops conducted by Mr. Luson, by Messrs. Burrows, Thomson and Mylne, and the Canal officers, show that crops exceeding 30 maunds of paddy per acre are produced from all varieties of soil, including *kewal*, which was stated to be injured by canal water. These crops were produced on lands which had been under irrigation almost since water from the canals was available. The estimate by an independent officer of the *average* crop of paddy on the irrigated land in 1888-89, when at the most critical time there was no rain to assist the canals, was $18\frac{7}{10}$ maunds, or two maunds per acre of paddy in excess of the results arrived at by the annual series of experiments carried out by Canal officers, and affords strong corroborative proof of their substantial accuracy. It is at least doubtful whether well irrigation is more beneficial than canal irrigation except for opium and barley; and the consideration has no weight in regard to *kharif* crops, which form two-thirds of those irrigated from the canals: *kharif* crops are not irrigated from wells.

12. In the preceding paragraph reference has been made to facts and figures which conclusively show that canal irrigation is not unpopular and that it is not injurious to the soil. Its advantages compared with irrigation from *aharas* will now be briefly adverted to. There are doubtless places where irrigation from *aharas* cannot be so conveniently effected since the canals came into operation, but there are also others, far more numerous, where, provided the *ahara* is kept in repair, the cultivator can still exercise a real choice in the matter. As stated in the quotation contained in paragraph 43 of the Chief Engineer's note, the constant and ample supply of water available from the end of June to October presented advantages over the uncertain supply from *aharas*, which failed either in the beginning or close of the season. The facility offered for early sowings should not be lost sight of. Even where, as in the exceptional case of Belgaon, an efficient *ahara* provided with masonry escapes existed, the cultivators, who are themselves the contractors and who have used canal water since the beginning, have hitherto preferred to subject themselves to a heavy yearly tax for the convenience and regularity of canal irrigation. There are in the three districts few *aharas* so efficient as the one at Belgaon, and the records of the criminal courts and the experience of former Civil officers show that there was no more frequent cause for riots and affrays than quarrels over *aharas* and *pynes*. If, on the whole, it is advantageous for cultivators occupying lands commanded by such an *ahara* as that at Belgaon to take canal water, how much greater must be the benefit where, as in the majority of cases, the *ahara* has a small gathering ground and is commonly inefficient because it is not kept in repair owing to the expense which must be incurred.

The water contained in the *aharas* is stagnant, and therefore like canal water, practically pure. It does not, even for barley and opium crops, possess the superior qualities which, it is not denied, for these crops only can be claimed for well water, especially where the well is old.

The *aharas* certainly impound water, which should not be the case with properly aligned canals, and must have considerable influence on the water-logging of which complaint is made. Malarious fever is as rife in the unirrigated portions of Gya and Shahabad, more especially Babooah, as in those irrigated, and the canals are certainly of use in supplying man and beast with pure drinking water for which no charge is made.

13. Of the reasons alleged by the Committee for reducing the water-rate, many have little real bearing on the point. If the system is at fault, it should be altered where defective; if individuals are to blame, they can be punished; but, even if true, the allegations made are not relevant to the point at issue. The public health is a matter of the highest importance, and it is right that such remedial measures as are practicable should be taken, but it does not follow that special advantages should be given to that portion of the community who use canal water and pay water-rates. It is certain that, except in a few cases, the fact of canal water being available more than compensates for injury which occasionally may have accrued to individual land-holders owing to *aharas* on their property being rendered less efficient, and in probably more numerous cases the extra supply of water poured over

the country has increased the efficiency of *aharas* belonging to the same or other proprietors.

14. In the pamphlet, written by Baboo Kandhji Sahai, it is even alleged that, compared with 1874, the import of piece-goods into Shahabad has fallen off, and that this fact indicates a deterioration in the material condition of the people, the result, it is implied, of canal irrigation. The assertion is made on the strength of statistics extending over four months only. A reference to the table, contained in paragraph 138 of the Chief Engineer's note, giving complete figures for 13 years, shows that within this period the imports have doubled. The increase has been very steady throughout this period with two exceptions only: about the year 1882 there was a slight falling off, and in 1886-87 an abnormal bound upwards.

15. The considerations enumerated in the quotation from the Committee's report in paragraph 10 above might have weight in determining the question whether a system of canal irrigation should be introduced for the first time or not, but they have little bearing on the question of what price should be charged for water when such a system has for years been in full operation. The water-rate to be charged should clearly be fixed as nearly as possible at the sum which, taking one year with another, the cultivator finds it profitable to pay. The experience gained, which is fully set forth in the Chief Engineer's note, shows conclusively that existing rates, so far as *kharif* crops are concerned, are not too high, and that it would be an injustice to the general tax-payers to burden them with the deficiency in the public revenue which would result from any lowering of the rates mentioned.

16. It is at the same time recognised that any increase in rate which might possibly be justified by the increasing demand for canal water would at the present time be unwise as calculated to lead to undesirable friction with the cultivators who have become habituated to its use. His Honour has, therefore, determined to keep the rate for *kharif* irrigation on long leases at its present figure, Re. 1-4 per *bi ha* or Rs. 2 per acre, but to extend the term of the leases from five to seven years and to give an undertaking that no increase shall be made in this rate in respect to leases entered into before the close of the year 1895-96. This favourable rate will, however, only apply where the channels are in good order and the waste of water small. For annual leases the rate will be Re. 1-14 per *bigha* or Rs. 3 per acre, as at present. There will be cases where the cultivators will be unable, for some time, to comply with the conditions which it is necessary should be fulfilled if Government is to be bound to supply water for so long a term as seven years, and to meet these it is contemplated, though the Lieutenant-Governor is not in favour of differential rates, to charge Re. 1-9 per *bigha*, but not to give leases for more than three years.

17. Modifications all in favour of the cultivator will be made in the case of *rabi* leases, involving a reduction of from 20 to 40 per cent., in the hope that the supply of water now running to waste in that season will be more generally utilized. The arrangements under which water is given for sugarcane will be revised with the view of more precisely defining the conditions under which water is supplied for that crop, and where the consolidated yearly rate is paid remissions will be allowed if the crop fails, whether such failure was due to the deficiency of canal water or not. Provision will be made for the supply of water by volume in October to unleased areas should a surplus be available after all leased areas have been fully watered. Under certain conditions, canal water will be supplied to *aharas* between November and March.

18. The rules will be amended providing that in the *kharif* season water will only be supplied to associations of ryots cultivating blocks of land to which water can be supplied without the probability of unauthorized irrigation occurring. The selection of the block, under certain restrictions, will, as recommended by the Committee, be left to the canal officer, who will be allowed to exclude land not commanded by the canal without special arrangements or not irrigable by flow. The canal officer will be required to specify in detail, in the permit, the size of the outlet and the approximate discharge, and to be responsible for the supply through the outlet. The discharge through the outlet will be mainly determined with reference to actual experience in 1888, when there were no autumn rains. The *tatil* will be limited to five days after ten days' consecutive supply.

The assessment of lands irrigated beyond the boundaries of the leased area will be absolutely and entirely prohibited, though power will be reserved to cancel leases, on the joint authority of the Superintending Engineer and Collector, where water is habitually wasted or misused. Where unauthorized irrigation occurs, not by water being abstracted from leased areas, but through a village channel being cut or a criminal offence committed, the Canal officer will be permitted, with the previous sanction of the Collector, to impose water-rates under section 79 of the Act. In this case, and in this case only, where the facts will be placed before an independent tribunal before any measurement is made, will any assessment for unauthorized irrigation be allowed in the *kharif* season.

The Committee recommend that no change shall be made in respect to the present method of assessing *rabi* irrigation, regarding which complaints were not received. This recommendation is accepted.

19. The non-assessment of unauthorized irrigation materially affects the subject of objections to demand. The cases in which most exception is taken to canal officers dealing in the first instance with complaints are those in regard to unauthorized irrigation. In no others are appeals ordinarily preferred. The remainder relate to errors in demand, and the decision arrived at is usually at once acquiesced in by the complainant. Many of them refer to changes in occupiers disposed of by alteration statements, the preparation of which will in future be entrusted to the Deputy Collector. Nearly half the complaints made are at once decided in favour of the complainant, and the demand statement is now generally corrected before it is sent to the Collector for realization. It would obviously be a hardship in these cases to require the complainant to prefer his objection at a different office from that in which the demand statement is prepared. But it is only in the sense of giving the sub-divisional canal officer an opportunity of correcting his assessment that the Lieutenant-Governor proposes to leave the disposal of objections with canal officers. The appeal will be direct from the sub-divisional canal officer to the Collector. It will, however, be required that reasonable expedition shall be used in preferring the complaint in time to admit of a satisfactory investigation being made. The *lambardar* and subordinate canal officers will further be required to bring to notice cases in which objections are likely to be taken, so that such may be enquired into before the crop is cut or the demand statement prepared.

20. In regard to minor matters the recommendations of the Chief Engineer are accepted. The cost of road crossings for village channels will in future be borne by Government. Minor distributaries will be provided in lieu of long village channels, and leases for land at too great a distance from the distributaries will not be accepted. The Superintending Engineer will be required to specifically define the areas within which water is available for irrigation in various seasons. He will also be required to advise the Collector in the case of appeals regarding village channels, or when a permit is refused owing to the unsuitability of a block. The joint and separate liability clause in long-term leases—an arrangement to which great objection was taken by the Committee—will be abolished. Selected landholders will be supplied every year with a copy of the Revenue Report, and invited to submit any suggestions they may desire to make for the improvement of the administration for the consideration of Government. The magisterial powers already conferred on canal officers will not be withdrawn, but in future all Engineers will be required to pass an examination before being so vested. The desirability of prompt orders being passed in cases where extraordinary remissions appear to be called for is recognized, and the Superintending Engineer in this respect will be vested with limited powers to be exercised without previous reference to Government. Water will, as already indicated, be supplied during certain months of the year to *abaras* on payment. The dates for the payment of water-rates have been fixed so as to be convenient to the cultivators, and payment by instalments in certain cases allowed.

21. The measures narrated in the two preceding paragraphs have as their main object the protection of the cultivator. But whilst desirous of securing to the ryot a full supply of water at proper times and on reasonable considerations, it is necessary that means shall be taken to secure payment of water-rates justly due. There are cases of villages where realizations are never made with-

out coercive processes of one kind or other, and power will be taken to shut off the supply of water to such villages altogether until all arrears are paid up, and in extreme cases to prohibit further supplies unless half the amount which will become due as water-rates is paid in advance. These extreme measures will be adopted only with the joint approval of the Collector and the Superintending Engineer.

22. On the important question of transferring the execution of certificates from the Special Deputy Collector to the regular Revenue establishment, the Lieutenant-Governor finds a great difference of opinion between the Collector and the Board on this subject. He has no doubt that the Board's view is in accordance with the intention of the law and should be carried out. The Board will be asked what changes in establishment are necessary for giving effect to the decision, and how the delay, &c., anticipated by Mr. Power can best be obviated.

23. The changes noted above will not be introduced without some loss to Government. The charge for water under long leases is much less than that charged under annual leases, and the growing popularity of the former has already had a marked effect in diminishing the supply of water available for the latter, and thus reducing the assessments. The lower rates for *rabi* will probably in the end be recouped by the increased area regularly irrigated; but for two or three years at least there will on this account be a diminution in the receipts.

The Lieutenant-Governor accepts the opinion expressed by all the local officers that in some shape or other fees must be paid for the duties performed by the *lambardars*, and also the recommendation contained in the Chief Engineer's note as to their amount and the duties for which they are to be payable.

Circle officers will be replaced by zilladars permanently appointed, provided no increase in the expenditure hitherto incurred on collecting establishment is thereby caused. It appears to His Honour that, despite the extra work thrown on the collecting establishment by the powers it is proposed to vest in the Deputy Collector to sanction alterations, and, in certain cases, remissions in demand, the spread of five-year leases involving to a large extent fixity of demand should admit of some reduction in the establishment formerly necessary. Some saving will result by the substitution of fixed fees for a percentage in cases where putwaris are called on to render assistance in the matter of assessments.

Drainage works, estimated to cost Rs. 2,82,271, have been sanctioned from 1884-85 to date, and investigations in regard to works still reported to be required are in progress. A statement showing all cases in which it is possible that drainage may have been interfered with is contained in Appendix I to the Chief Engineer's note; in but few of the instances mentioned have remedial works not been carried out, and in these cases investigations are in progress.

The magisterial powers vested in some of the canal officers have admittedly been but sparingly exercised; and though the Lieutenant-Governor is, on general principles, opposed to permitting canal cases to be dealt with except by the ordinary tribunals, he is unwilling to weaken the hands of canal officers in times of great demand for water.

24. The rules under Act III (B C.) of 1876 at present in force will be amended in the sense indicated in this Resolution and forwarded to selected officers for opinion. The replies received will be considered and draft rules published in the *Calcutta Gazette* for general criticism before being enacted under section 99 of the Act.

25. The Committee make certain proposals for changes in the law. These are mainly that an application for water by a large majority of interests in a given block should bind the minority; that the law should bind the zemindar in *bhaoli* tenures to share, either directly or indirectly, the burden of irrigation charges; that the water-rate should be declared an encumbrance on land of the same character as rent: in other words, that it should be binding on the applicant's successor in interest. These three recommendations have the Lieutenant-Governor's concurrence, but legislation to give effect to them requires the approval of the Government of India, and the question of revising the law on these as well as on other minor points will be separately dealt with.

26. It will be seen that the great bulk of the Committee's recommendations have been accepted either wholly or in part; that in some the object

aimed at has been secured by a modification of the proposed methods, and only in regard to the rates charged for *kharif* irrigation has the Lieutenant-Governor been obliged altogether to reject their recommendation. The work of the Committee has not been unfruitful; it has, on the contrary, been of the highest value, and the thanks of the Lieutenant-Governor are due to Mr. H. J. S. Cotton, C.S., the President of the Committee, and to Mr. C. W. Odling, M.E., M.I.C.E., and Rai Jai Prakash Lall, Bahadur, Members, for the care with which they have carried out their investigations, and especially to the President for the very lucid report submitted. The Lieutenant-Governor also desires to record his thanks to Colonel Harrison, late Chief Engineer, for the valuable note submitted by him on the report.

His Honour further recognises the assistance rendered by the Maharaja of Doomraon in providing the Committee with facilities for carrying out their enquiries.

Special thanks are due to the firm of Messrs. Burrows, Thomson and Mylne for their co-operation in the crop experiments carried out, and for a long course of assistance to the Irrigation Department, in no way interrupted by the criticisms they considered it their duty, in the public interest, to make on the system of administration pursued.

Sir Steuart Bayley notices with pleasure the very thorough manner in which Mr. H. Luson, C.S., carried out the enquiries committed to him.

27. The Chief Engineer has selected from amongst the names mentioned by the Committee those of Mr. L. H. Mylne, Baboo Kandhji Sahai, B.A., B.L., Mr. W. A. Inglis, and Baboo Sharoda Prosad Chatterjee as having, both during and subsequent to the Committee's proceedings, rendered valuable assistance in arriving at a satisfactory solution of the difficulties which led to the appointment of the Committee. To the gentlemen mentioned above and in the Committee's report, and to all others who, though not specially named, aided in the enquiry, the acknowledgments of Government are due.

ORDER.—Ordered—

1. That a copy of the Resolution and the Chief Engineer's note and Appendix I be published in the *Calcutta Gazette*.

2. That a copy of this Resolution, of the Committee's report and of the Chief Engineer's note thereon, and all attached papers, be submitted to the Government of India in the Public Works Department for information.

3. That a copy of this Resolution and the documents referred to therein be forwarded to the Appointment, Judicial, Financial, Revenue and General Departments of this Government; to the Board of Revenue, Lower Provinces; to the Commissioners of the Burdwan and Orissa Divisions; to the Superintending Engineers of the South-Western and Orissa Circles, and to the Director of Land Records and Agriculture for information.

4. That a copy of this Resolution and the documents referred to therein be forwarded to the Commissioner of Patna; the Superintending Engineer, Sone Circle, and the Collectors of Shahabad, Patna, and Gya, for information and guidance.

5. That a copy of this Resolution and the Chief Engineer's note be sent to Mr. H. J. S. Cotton, C.S., to Lieutenant-Colonel C. W. I. Harrison, R.E., to Mr. C. W. Odling, to the Maharajah of Doomraon, to Rai Jai Prokash Lall, Bahadur, to Messrs. Burrows, Thomson, and Mylne, and to Mr. H. Luson, C.S., with reference to paragraph 26 of the Resolution.

6. That a copy of this Resolution and the Chief Engineer's note be sent to Mr. L. H. Mylne, to Baboo Kandhji Sahai, B.A., B.L., to Mr. W. A. Inglis, and to Baboo Sharoda Prosad Chatterjee, with reference to paragraph 27 of the Resolution.

By order of the Lieutenant-Governor of Bengal,

J. M. McNEILE, *Col.*, R.E.,

Secy. to the Govt. of Bengal,

P. W. Dept

NOTE BY LIEUT.-COL. C. W. I. HARRISON, R.E., CHIEF ENGINEER, BENGAL, ON THE REPORT OF THE COMMITTEE APPOINTED TO ENQUIRE INTO THE ADMINISTRATION OF THE SONE CANALS, DATED 14TH JANUARY 1890.

Appointment of Committee and Report.

Vol. II, page 5.

(1). In a Resolution No. 1884*I.*, of date the 11th November 1887, issued by the Public Works Department (Irrigation Branch) of this Government, a Committee was appointed to enquire into the allegations contained in a memorial numerously signed by many of the leading residents and landholders of the Shahabad district, complaining of imperfections in the system of assessing lands irrigated by the Sone Canals, as well as of oppression in collecting the water-rates charged. It was also alleged that injury had been caused to the general health of the district by obstructions to drainage caused by the canals and distributaries, and other causes of complaint were mentioned. A copy of the Resolution was forwarded to the members of the Committee—Mr. H. J. S. Cotton, C.S., President, and Mr. C. W. Odling, C.E., and Rai Joy Prokash Lal Bahadoor, members—with a letter No. 1886*I.*, dated the 11th November 1887, in which the complaints made in the memorial were detailed, as well as probable faults of system which had been brought forward by officials, and the remedies suggested.

Vol. II, pages 5 to 10.

The Committee was instructed to report on the points noted below—

I.—All classes of complaints and erroneous procedure which are brought to notice either in the memorials or in the various memoranda and reports submitted to them.

II.—The following points on which questions have arisen in the course of working the Act:—

(*a*)—The definition of a village channel.

(*b*)—The liability to water-rate as affected by the use of the words "supplied through a village channel" in sections 79 and 80 of the Irrigation Act.

(*c*)—The alteration of section 74 of the Irrigation Act.

(*d*)—The necessity for legislating for a more summary mode of realizing water-rates than is permissible by the Certificate Act.

III.—The great difficulty experienced in arranging for a proper distribution of water and assessments on irrigation in the absence of village channels and the mode of overcoming this.

IV.—The advisability of making any changes in the existing system of assessments and collection, and of the distribution of duties regarding the assessments and supply of water between the Engineer and Revenue officers. In connection with this, it should be considered whether, since the professional establishment would still have to be maintained at about its present strength for the work, it would not be a waste of strength to abstain from utilizing their services as far as this is possible in the interests of the public for other branches of canal work. Moreover, the gradual and steady progress which is brought out by the reports and notes of the Canal officers should have its due weight in determining whether such progress does not point to its being preferable to build up and improve the existing system, with its gradual growth of ten years, rather than to aim at an entire change.

V.—Changes in the rules to remedy the defects brought to light by the various complaints.

VI.—The necessity for further provision for drainage, and in connection with this the effect of the altered conditions under which the "aharas" now hold water all the year round, instead of as formerly for only a few months, to which reference is made in paragraph 10, clause (18) of the observations; and whether any practical remedy can be found for the difficulties connected with the "aharas."

It was stated that the Lieutenant-Governor hoped that three months would suffice for the completion of the enquiry and submission of the report.

(2). The enquiry was as directed carried out as expeditiously as possible, and the report is dated the 13th March 1888. It is signed by all the members of the Committee, subject, however, in the case of Mr. C. W. Odling, to a dissent, dated the 31st March 1888, and in that of Rai Joy Prokash Lal Bahadoor to a dissent, dated the 4th April 1888. In both cases the reservations embodied in the dissent are material, and the report may be taken to be that of the President, Mr. H. J. S. Cotton, C.S., supported, however, in many respects, chiefly as regards the recommendations for the future, by the departmental member of the Committee.

(3). The report was forwarded to the officers mentioned in the margin for criticism. The date of their replies is noted. The Revenue Secretary, the Hon'ble Mr. Nolan, who had been Collector of Shahabad from 10th May 1880 to 3rd March 1885, was, by order of the Lieutenant-Governor, specially asked to comment on the report, and has furnished a most valuable note, dated the 10th of July 1888. Mr. L. H. Mylne of Behea was also good enough to forward for consideration a number of remarks on the report, dated the 30th June 1888. As the firm of Messrs. Burrows, Thomson and Mylne have had much experience in the matter of canal irrigation, and have invariably endeavoured to co-operate with the canal officers in regard to improved arrangements for distributing water and in other matters, the opinions expressed by Mr. Mylne are specially valuable.

Board of Revenue, Lower Provinces, 25th June 1888.
Collector of Shahabad, 31st August 1888.
Baboo Saroda Prosad Chatterjee, Special Deputy Collector, 25th May 1888.
Mr. W. A. Inglis, Executive Engineer, 21st June 1888.
Mr. D. B. Horn, Executive Engineer, 2nd July 1888.
Mr. H. B. Frost, Executive Engineer, 16th July 1888.
Mr. C. A. White, Assistant Engineer, 6th July 1888.
Baboo K. C. Banerjee, Subdivisional Officer, 3rd July 1888.
Mr. K. H. Stephen, Executive Engineer, 20th June 1888.
Mr. H. Barlow, Assistant Engineer, 4th July 1888.
Mr. M. H. Arnott, Assistant Engineer, 2nd July 1888.

The notes of the Engineers were mainly replies to statements made by various witnesses.

(4). As might have been expected, the proceedings of the Committee and their report not only brought vividly to the notice of the canal officers the grievances it was alleged that the irrigating cultivators had suffered at their hands, but also threw light on weak points in the system pursued, more especially those in which the exact provisions of the law had not been observed. The season 1888-89 proved to be one in which the rainfall, though abundant, was not, as regards the rice crop, well distributed, and the Superintending Engineer, Sone Circle, who, in Bengal Government orders No. 1821*I.* of the 19th November 1887, had been informed, in reply to a suggestion to that effect that the services of a civil officer would, should circumstances render it desirable, be placed at his disposal, asked that a junior civilian might be appointed to report on the state of the irrigated crops and on certain other points. The officer selected, Mr. H. Luson, C.S., who had previously acted as Joint-Magistrate of Shahabad, and who was at the time Officiating Collector of Gya, commenced his enquiries on the 24th of October 1888, on the termination of his acting appointment.

Mr. Luson submitted a preliminary report on the 5th of ember 1888, which was published in the *Calcutta Gazette* the 9th of January 1889, as an appendix to a note by the erintending Engineer, Sone Circle, dated the 14th of ember 1888.

Mr. Luson himself carried out a large number of experi- ats as to the yield of the irrigated crops, and a note by , dated 4th February 1889, on the subject was published in *Calcutta Gazette* for the 3rd of April 1889.

This note embodied not only the results of the experiments ried out by Mr. Luson himself, but those carried out by al officials and by Messrs. Burrows, Thomson and Mylne, had, with their usual public spirit, rendered all the assist- e in their power.

5). Considerable public interest was evinced in the pro- lings of the Committee, and the landholders and others rested associated themselves together to render such istance as they were able in bringing forward evidence of grievances complained of, and suggesting remedies for the e. The Secretary of this Co-operating Committee has e published a pamphlet, of which I received a copy on the h of June 1889. The pamphlet mentioned above may, in junction with the dissent of Rai Joy Prokash Lal Baha- r, be taken as the statement of the case which commends lf to the landholding portion of the community.

6). The report on the revenue administration of the Sone cle for the year 1888-89 was received on the 14th of tember, and contains statistics and general information arding the progress of irrigation during the year. In the antime, another *kharif* season, 1889-90, in which the late s, so essential for the proper maturing of the rice crops, e failed, has passed away; and before this note is concluded s probable that the Superintending Engineer, Sone Circle, l be able to furnish a report giving the main facts con- ted with this season's *kharif* irrigation. The weekly gation notes received from Canal Divisional and Sub- isional Officers have already in a somewhat diffuse form ced on record the chief characteristics of the season.

7). I was travelling about the Sone Canals during the ght of the demand for canal water in 1888-89, 17th tober to 2nd November 1888, in company with the erintending Engineer and Mr. Power, the Collector of ahabad, and I spent a month (May) last year in the circle lecting further information.

8). The delay in considering the Committee's report ugh in some respects possibly unfortunate, unquestionably nits of its being dealt with in a more comprehensive man- than would have been possible if it had been disposed at an earlier date.

ain heads of report, Vol. ages 1 to 4.

(9). The report of the Committee is divided into four parts, as noted low—

Part I—Historical and descriptive.
Part II—Complaints against the canal system.
Part III—Complaints against administrative procedure.
Part IV—Recommendations of the Commission.

It will be convenient, after considering Part I of the ort, to briefly refer to the provisions of the law and the es passed under it and the actual administrative system rsued. Such an examination will show that the difficulties d complaints to a large extent arose from an endeavour to graft rules and a system of procedure, in accordance with ich the Northern India Irrigation Act was drafted and sed, on an Act differing from it in many respects and ntaining at least one section distinctly hostile to a very portant feature in the rules and system taken as a guide. e system followed, it will subsequently be made clear, was opted with no view of enhancing the revenue derived from e canals, but simply with the object of levying water-rates those cases only where irrigation with water taken from the canals had actually been practised, and where benefit had been reaped.

Part I.—Historical and Descriptive.

(10). It is unnecessary to follow the historical and descriptive account of the canals contained in the report except from two special points of view—(I) anticipated revenue, (II) crops to be irrigated.

Part I, Historical and descriptive, Vol. I, pages 1 to 11.

As to the former, it must be admitted that the forecasts of revenue submitted by the Engineers who designed and carried out the works have not been realized, and that the anticipations of commercial success, which were founded on facts regarded by the Government of India as incontrovertible and accepted by the Secretary of State, have been falsified. The fact is to be regretted, but there are no grounds for believing that these mistaken estimates have had any practical effect on the canal administration.

Vol. I, page 4, and note, page 5.

The responsible local manager, the Superintending Engineer, has not, for many years, encouraged Government to expect more than a modest surplus over working expenses. An extra charge for establishment, imposed as a matter of arrangement between the General and Irrigation Branches of the Public Works Department, has to a certain extent vitiated his calculations, and allowance must be made for the effect of the sittings of the Committee: if this be done it will be found that his estimate has been substantially not far from correct, both as regards net revenue and area likely to be irrigated.

The latest forecast which is specially referred to above is that contained in the Superintending Engineer's letter No. 2432 of the 13th July 1886, the figures included in which were relied on in arranging the financial contract between the Bengal and Supreme Governments for the five years commencing with 1887-88. The letter was written long previous to Sir Steuart Bayley's visit to Arrah in August 1887, and before here were any signs of the agitation which culminated in the memorial leading to the appointment of the Committee. Reference will be made to the forecast later on; here it is sufficient to say that Government deliberately accepted a moderate estimate of revenue for the five years ending with 1892-93, and that it is this estimate,* and not the more sanguine ones framed before any actual experience on the working of the canals had been obtained, which must be taken as the financial results that were expected.

Vol. II, page 245.

* Estimated area to be irrigated—	acres.
1887-88 ...	325,000
1892-93 ...	375,000
Actuals—	
1887-88 ...	315,880
1888-89 ...	355,909

The second point mentioned in the preceding paragraph—crops to be irrigated—will now be considered.

(11). The connection between the revenue derived from the canals and the substitution of *kharif* for *rabi* crops may not at first sight appear to be close; but in the course of this note will be made clear, and the spread of rice cultivation on lands formerly devoted to *rabi* crops will therefore be now briefly referred to.

Vol. I, pages 24 to 31.

When the canals were projected, it was assumed that, as was then approximately the case, half the area commanded would be cultivated with *rabi* and half with *kharif* crops, the former mostly filling the high lands in the immediate vicinity of the canals and distributaries, and the latter those lying at a lower level. The change in the character of the crops raised on the land—generally high—on which the canals run is remarkable. *Rabi* crops have practically disappeared. The character of the soil and the presence or absence of wells seems to have had little or no effect on this result, which was due to one cause and to one cause only—the possibility of getting a full and regular supply of water. On this point there can be no possible doub,

as will be evident from the subjoined extract from a letter from Mr. L. Mylne, dated the 3rd June 1884, commenting on the report with particular reference to its applicability to the Jugdispore estate, italics are mine.

Note on page 30, paragraph 86 of report.

"For the irrigation of the jungle portion* there were no *aharas*, but we constructed between 500 and 600 masonry wells which, till the advent of canals, sufficed for all the requirements of the cultivators. *There was hardly any paddy cultivation.* * * * The adoption of canal irrigation was rapid and general all over the jungle mehal, resulting after a few years in an almost entire change from dry weather to wet weather crops which *could not*† *be raised by well irrigation.* The transformation has been so complete and thorough that only the absolute refusal of canal water for paddy would compel the ryots now to forego the cultivation of that crop."

* About 13,000 beegahs.

† Worthy of note, as in the complaints it was frequently asserted that rice had been irrigated by wells.

(12). As stated in the report, it may be that the change has been "not altogether in the best interests of the people." I am myself of opinion that restrictions—which would not have been popular—in the quantity of water supplied in each distributary in the *kharif* season should have been applied, and Mr. Mylne, senior, has‡ expressed a similar view; but there surely must be decided financial advantages, or so overwhelming a change would never have been made by a people notoriously conservative in their methods of agriculture. There was no necessity for the alteration, as ample means for irrigating *rabi* crops with well water, if there were objections to canal water existed in the Behea estate.

‡ Vol. II, page 195.

(13). Sir G. Campbell, who was by no means sanguine of the success of the canals, was apparently just as much mistaken as the Engineers: his fear§ was that there would not be sufficient water in the river to supply the canals with the water required for the winter crops. As a fact, there has hitherto been always enough to spare in that season; and with the view of inducing the people to take advantage of it, the Committee propose to reduce the rates for *rabi* irrigation. The exact bearing of the change in the character of the crops on the revenue derived from the canals has been that the higher sandy lands near the canals, which the projectors of the scheme anticipated would be cultivated with *rabi* crops, have been covered with rice, and the *rabi* water rates which it was expected would be realised have been lost. The water utilized in the manner described is not available for the lower lands further from the canals and more suitable in themselves for rice crops besides requiring less water. The attached map will show how concentrated the irrigation is, and how much *kharif* irrigation could be developed if the water-supply was sufficient during that season.

§ Vol. I, page 5. Latter part of quotation.

It is also an open question—and something more on this head will be said later on—whether the canals by increasing the quantity of drainage water have not, so far from injuring existing *aharas* used for the irrigation of rice lands, improved their supply.

(14). An extra 100,000 acres of *rabi* irrigation would make all the difference in the financial prospects of the scheme, and if in one estate 13,000 acres of *rabi* cultivation, a large part of which might reasonably have been expected to take water for that crop, have disappeared, it scarcely seems extravagant to suppose that this area alone has not only been lost, but absorbed a supply of water which could have been more profitably disposed of in irrigating lands naturally better adapted for rice crops.

From what has been said above, it will be seen that the change from *rabi* to *kharif* cultivation, which dates from after 1877-78, when *rabi* crops irrigated by canal water mostly failed, was neither contemplated nor welcomed by canal officers. It is right to distinctly traverse the statement made in the report—

Vol. I, page 10, section 26.

"The conviction which impressed itself on Colonel Rundall's mind that the canals must be maintained from rice cultivation and not from *rabi* has moulded the whole subsequent policy of the department."

The action of canal officers has been limited to accepting such changes as the cultivators have in their own interests carried out; and as a matter of fact the water-rate on rice crops was raised by about 20 per cent. on the 1st of April 1881 in the case of annual leases.

Part IA.—Actual Administrative System pursued.

(15). Turning now to the actual administrative procedure followed, the Act, section 74 (page 188 I.M.), provides that "every person desiring that water *shall be supplied* to his land from a canal shall present a written application to that effect to the Canal officer in the form given in Schedule B hereto annexed, or in a similar form, binding himself by the rules made by the Lieutenant-Governor under the powers vested in him by this Act."

Actual administrative system followed.

The words *shall be supplied** are of doubtful meaning, and will be adverted to further on. Schedule B (page 192 I.M.), is obviously intended to be filled in and presented to the Canal officer by individual cultivators. This will be evident on inspection. The name of the applicant is to be put at its head, and there are columns below in which the number of the fields in the revenue survey maps, the acreage of each field, and the crop to be grown, are specified. Leases for compact areas by the occupiers of the various fields included in the block are not contemplated, though in practice it is only to such blocks that water can be delivered. The permit Schedule C (page 193 I.M.) is also in a form obviously intended for issue to individual cultivators only. Sections, 74 and 75 of the Act (page 188 I.M.), in which the forms comprising these schedules are prescribed, fortunately give some latitude in the matter to the Lieutenant-Governor, allowing similar forms to be enacted as part of the rules. The discretion thus given was taken advantage of, and the application form prescribed in the rules (page 212 I.M.) which, under section 99 of the Act (page 192 I.M.), have the force of law, is for a convenient block including usually the fields of several cultivators.

* *Vide* Vol. II, page 251.

The signature or mark of each cultivator is required, and the area, more or less, he proposes to irrigate, but the application must be presented through a *lambardar* appointed by the applicants (in the manner provided in Rule 6, page 208 I.M.) to act on their behalf, and the permit is issued in his name. There is nothing illegal in the procedure above detailed, though dealing with associations of cultivators instead of individual ryots, is not expressly authorized in the Act itself.

(16). It has already been stated that practically water can only be delivered to blocks more or less compact, and that the application, instead of being for specified fields, is for areas more or less, in the occupation of cultivators who have signed the application. The statement of water-rates due is except in the case of five years' leases, prepared after the fields have been irrigated, and the manner in which the measurement is to be effected, the demand statement prepared and published, and objections thereto decided, is elaborately provided for in Rules 38 to 48 (pages 210-11 I.M.). This procedure is to some extent justified by section 78 of the Act which states that "the rates to be charged for canal water supplied for purposes of irrigation shall be determined by the Lieutenant-Governor, and all persons *accepting* the water shall pay for it accordingly."

Paragraph 2 of Instructions for Canal Officers (page 223 I.M.) states that the "application constitutes an acceptance of water within the meaning of section 78 of the Act."

In practice, however, the actual area irrigated is measured, lands applied for but not irrigated have not been charged. This procedure was approved of in Colonel Harrison's letter No. 1334I of the 9th August 1881, contrary orders having been given by Colonel Haig, but seldom, if ever, acted on.

7). The Rules, pages 207-215 I.M., and Instructions Canal Officers and Subordinates, pages 223-228 I.M., very much on the lines of those issued in the North-tern Provinces under the Northern India Canal and inage Act, in which no written application for water required. Persons entitled to use a village channel in those provinces the right to take water whenever they se, and an endeavour was made to, as far as was legally ible, assimilate the procedure in Bengal to that which had eeded in the Upper Provinces. It is stated in paragraph the instructions for Canal Officers (page 223 I.M.) that basis of all demands is the application form, but as a ter of fact water-rates are (paragraph 3) to be levied in rdance with the *khasra* prepared by the ameen under e 38 (page 210 I.M.). A permit is not issued, nor are any ngements made to supply the cultivators with water il a written application has been filed. Once, however, a nit was issued, the cultivators were permitted to take er pretty much as they liked, and the actual area irrigated measured and charged.

he past tense is used in the paragraph preceding, as erly, more especially since the Committee at, the ply of water has as far as practicable been limited to required for the area to be irrigated, and active measures n to prevent lands outside those mentioned in the applica- continuing to receive water. It was in previous years held either the area irrigated was covered by the written lication, or the cultivators were liable to be charged, under ion 79 of the Act (page 189 I.M.), the water having been l in an unauthorized manner. It is a question what is the e of the words in section 74 of the Act (page 188 I.M.) pplied to his land with the permission of the Canal Officer." active aid was given to admit of lands, not covered by a nit, being irrigated, and unless water was taken from an et which it was necessary to keep open to supply leased s, the outlet was closed so soon as it was reported to the al Officer that unauthorized irrigation was in progress. the other hand, if the definite was properly and necessarily n, but little care was taken to prevent irrigation extending ond the boundaries of the land for which a permit had n issued.

8. As the application is required to be in writing, it has n suggested that the permission must also be in writing, at any rate definite (vol. II, page 251). The applica- was *de facto* treated more as a notice that water was ired in a certain locality than as actually giving the to be watered, though considerable regard was paid to latter in fixing the size of the pipes when a temporary let was required. The applications were nearly invariably an area considerably less than the cultivators intended rrigate.

he instructions for Canal Sectional Officers, paragraph 5, e 224 I.M., which distinctly forbade them to close an let once irregularly opened without the sanction of the -divisional Canal Officer, show clearly that it was sidered more important that the supply of canal water uld not be stopped than that unauthorized irrigation should prevented.

he Canal Officer usually, before closing the outlet, gave cultivators a further opportunity of filing an application.

9. It is here that the question of supply comes in. In definition of village channel, section 3 of the Act (page I.M.), the sluice or outlet through which the channel is plied is expressly excluded; it follows that the owner of channel or the *lambardar* is not responsible for the open- and closing of the outlet, though it has been the practice most cases to permit the cultivators to regulate the supply ater as they pleased. In fact, until permanent outlets ld be constructed, no other course was practicable, as the pipe let was stopped with a wisp of straw which could at once pulled out without difficulty. It was not possible to fix position of permanent outlets until it was known not only re they would be required, but the average area to be irrigated by each, so that the size of the opening required could be ascertained.

The Act throughout—sections 74 and 78 may be taken as examples—contemplates the supply of water being regulated by the canal officer, and Mr. Mylne* has right on his side when he objects to this burden being thrown on the lessee. At the same time the cultivators prefer to have the power to open and shut the outlet at their discretion without having to seek for the canal subordinate entrusted with the key.

* Vol. II, page 182, paragraphs 5 and 6.

10. In the case of unauthorized irrigation, there is no question that the first point for decision is—Was the supply passing through the outlet required for leased areas and improperly diverted to lands not covered by a permit? It will be gathered from what has previously been said that until this point was brought forward in connection with the memorial, it was seldom or ever considered. It sufficed if it could be shown that the land had been irrigated through a village channel, and that the crop had derived benefit therefrom; benefit was usually assumed if the crop were a fairly good one, and it may here be mentioned that we have lately been advised that temporary benefit is sufficient to justify an assessment. The fact is that under the system of measurement prescribed in rule 38 (page 210, I. M.), the objection would only occur in cases where liability to water-rates rather than the fact of irrigation or benefit was disputed, and such cases were not common, though perhaps those in which most feeling was shown.

The blots in the system described above, viz. (I) the transfer of responsibility for the supply through the outlet from the Canal Officer, to whom it legally appertained, to the *lambardar*, and (II) the failure, in cases of unauthorized irrigation, to take into account the *lachés* of the Canal Officer in permitting a supply of water through the outlet in excess of the legitimate requirements of the leased area, though less strongly commented on in the report than other aspects of the case, are in fact the most serious faults established in the system of canal administration pursued. They are strongly animadverted on by Mr. L. Mylne, who is, I think, justified to the extent already admitted in saying that "Canal Officers shirk all responsibility in the matter of preventing 'waste' and 'unauthorized' irrigation." The word *all* should be omitted, as endeavours were always made to prevent an outlet being opened until a lease was executed, and the tendency to check and restrain irrigation without permit was each year becoming more and more fully developed. It is possible that the *lambardar* might, even with the law as it stands, be required to close an outlet when water is no longer legitimately required for the irrigation of *leased* areas.

Vol. II, page 181, paragraphs 5 and 6.

It was indeed becoming clear that, despite the obvious advantages of permitting cultivators to take water, as in the North-Western Provinces, when they liked, and then measuring the area irrigated, the practice led to undesirable disputes when the lands were assessed. One element of success in any such system was from the first wanting, inasmuch as an endeavour was made to supply all the irrigable lands in a village with water even in the *kharif* season if required, whilst in the North-Western Provinces not more than 40 per cent. of the culturable lands of a village is supposed to be provided with irrigation in the *kharif* and *rabi* seasons together. If the supply of water had been thus strictly limited the following advantages would probably have been gained. In the first place the control of the outlet could have been given to the cultivators who would most likely have taken it willingly; secondly, having this control and knowing that the supply was limited, they would have had every inducement to make it go as far as possible; and, thirdly, the limited supply would have rendered it obligatory on them to confine the irrigation within well defined limits, and thus disputes regarding assessment would have been very rare.

It is doubtful whether, unless the area to be irrigated in each village was limited, any system not involving restricting the supply in accordance with the area applied for, could continue to have been permanently followed with financial advantage to the canals or contentment to the cultivators.

The chief benefit Government reaped by the system actually pursued was that irrigation spread more rapidly than it would have done had a strict system of written applications for definite areas of lands previously measured been insisted on, and the quantity of water rigidly limited to what was required for these. The financial disadvantages to Government of the system followed were in no wise evaded. As has previously been stated, no attempt was made to measure lands for which applications had been filed, but for which water was not required.

21. The system followed was practically that led up to by the rules and instructions which had been approved by Government; and, as will be shown later on, the administration was in the main considerate, almost beyond the limits of the authority confided in the officers to whom it was committed.

These remarks apply wholly to *kharif* irrigation. It is expressly stated in the report that there were no complaints of unauthorized irrigation in regard to *rabi* crops.

Vol. I, page 67, section 209.

It is perhaps as well to describe as succinctly as possible the duty which devolves on the Canal Officer under a strict construction of the Act. He is practically by the Act and rules, though not so specifically stated therein, required to supply a definite area of land with just so much water as is necessary to ensure the crop being brought to perfection, and at the same time to ensure that the supply shall be so restricted that water shall not be available for the irrigation of lands beyond the boundaries of the area leased. The quantity of water required will vary each year in proportion to the rainfall, and not only the quantity, but the time when wanted. The problem is a difficult one even in the initial stage of laying down rules, which will admit of the Canal Officer, on the one hand, as far as practicable, protecting the public interests by preventing canal water being used without payment being legally enforceable, and, on the other hand, conforming to the standard above laid down that leased areas shall receive such a full and timely supply of canal water as is required for the crops.

PART II. COMPLAINTS AGAINST THE CANAL SYSTEM.

22. This part of the Committee's report will now be considered. The Sone Canals scheme on the 1st of April 1889 consisted of 218 miles of navigable canals, 149 miles of canals for irrigation only, and 1,167 miles of distributaries. It is obvious that in constructing such a network of channels injury to private rights could not be avoided, and that inconvenience, and in some cases actual loss, would be suffered by individuals, which would not be adequately recompensed by any pecuniary compensation admissible under the law, however considerately and even liberally administered. Generally compensation beyond the actual value of the land acquired was not claimed. Whatever benefits might accrue would in the course of a few years be taken as a matter of course, whilst the injuries suffered by individuals or their ancestors would by no means be forgotten, especially in those cases where the inconvenience was still felt, such as a canal running through a village. So far as the points above mentioned are involved, and parts of the administrative system are concerned, to which detailed reference will presently be made, but which may here be stated to include, amongst other matters, 'unauthorized irrigation' and its consequence 'deficiency of supply' and the collection in a short time of heavy arrears, it may be admitted that the agitation was to a large extent real.

Volume I, page 12, section 29.

The complaints brought forward included both classes, cases, those where individuals had suffered injustice, balance by others where the only real grievance was that water w not supplied at the valuation of the lessee.

23 Mistakes could not fail to be made by officers who ha no previous experience of work of the kind, and no experien in other parts of India would have enabled either revenu officers or engineers to deal successfully with conditions pecu liar to the districts served. Frequently, as in the case of th substitution of *kharif* for *rabi* crops, the conditions were them selves an effect of canal irrigation—only gradually developing the effect of which was not at once realized either by the cult vator or the engineer. That these difficulties were not at one fully met can be no matter for surprise. That efforts no wholly unsuccessful were made to meet them is unreserved admitted by the Committee in paragraph 96 of their repor It must not be forgotten that, except in the case of one miner firm, the canal authorities could count on no active aid fro either landholder or cultivator in preventing or detecting th misappropriation of the water which had cost Governmen much and which the cultivator never forgot might, if timel rain fell, be dispensed with. The article was in fact looked o as one which in the *kharif* season of the year at least was a common that payment was in every case more or less of a hard ship to be evaded if practicable.

24. From paragraphs 15 to 21 of this note it will be see that the rules and instructions adopted for the guidance canal officers, though admirably adapted to the circumstance of other provinces, have not been found to be altogether suite to irrigation as practised from the Sone Canals. Difficultie had been experienced which could not be adequately cope with by canal officers, and for which a thorough investigation whether by a committee or a single qualified officer, was necessity.

So far from complaining of the conduct of the gentlemen who interested themselves in th memorial presented to the Lieuten ant-Governor, I am free to admit that the time for such a enquiry was opportune, and that it was desirable that a landholders they should take the opportunity of which they availed themselves of putting their views on the questio before His Honour. The advantages which have resulte from the enquiry, from one point of view, can scarcely b overrated. It has placed prominently before canal officer the popular view of alleged grievances, and enabled them t remove causes of complaint which they were perhaps no disposed to consider of any great importance till so strongly animadverted on. The reforms have been effective, and car will be taken that the improvements already made are main tained.

Volume 1, page 12, section 30.

25. It is only fair to the superior canal officers—th Superintending Engineer and Collector—to say that th grievances so much complained of were never fairly brought t their notice. A communication from gentlemen in the positio of Messrs. Burrows, Thomson and Mylne could neither hav been lightly dealt with nor ignored. The matter is not o practical importance; it is admitted that a systematic enquir was necessary, and the redress of particular grievances coul but have postponed it.

26. The manner in which the enquiry was conducte may now perhaps be noticed. Both the Collector of Shahabad and th Hon'ble Mr. Nolan have taken strong exception to the Com mittee's proceedings in not having verified the statement made by properly sifting the evidence on which they were based. There is much force in the objection if the statement are to be taken as embodying anything more than th popular view of the grievances suffered. There are, however other aspects of this question apart from the limited time fixed for the completion of the enquiry. It was absolutel necessary that the Committee should rigorously abstain fro any appearance of exercising appellate or other authority ove canal officers, and investigations into individual cases coul

Volume 1, page 2.

scarcely have failed to have led to the expectation that actual orders would be passed on complaints brought forward.

27. As it was, the proceedings of the Committee interfered not only with the collection of the demands then due, which could be realized subsequently, but also with the measurements and assessments which could not be postponed. Investigations requiring the personal attendance of canal officers would have seriously interfered with these pressing duties. They were called on for reports on the more important cases, some of which, with all or nearly all the replies by the Deputy Collector and his subordinates, are printed in Volume II of the report, whilst others were received after it was submitted, and will, when necessary, be referred to in this note.

For the purposes of the Committee the method adopted was, under the circumstances, suitable, and except that possibly in a few of the more important cases it would have been well to have dealt more completely with both the complaint and reply, I do not take exception to it, further than that at times it seems to have been forgotten, in commenting on alleged individual grievances, that it was possible that the account given of them might not be accurate and that it was certainly unsafe to treat them as undisputed facts. It is stated in the report that replies to some of the complaints have been printed in juxtaposition with the complaints, but they are seldom or ever alluded to therein, an omission which has since been to a certain extent supplied by the reports enumerated in paragraph 4 of this note.

Vol. 1, page 2, paragraph 3.

28. The first point taken up is "CANAL *versus* AHARA IRRIGATION FOR RICE."

Volume I, page 13.

It is stated by the Committee that the one aspect of the canals which forces itself upon the people more than another is—

"That irrigation from the canals has superseded and rendered impossible within the area commanded by the canals the old system of irrigation by ahars and pynes. The zemindars complain that the ahars constructed by them have been destroyed and rendered useless without the payment to them of compensation. * * * The cultivators complain that they have now to use canal water and pay for it, whereas formerly they had the ahar water for nothing. They have now to pay an annual tribute of, say, eight lakhs of rupees for water-rates, whereas formerly they were supplied with the old means of irrigation without any payment. It is true that in some cases a small ahar rent of one, two, three or even four annas a bigha was charged by the zemindars, but in many cases nothing at all was charged. * * * These are simple facts. The question is whether they are sufficiently met by the allegation that by the use of canal water the yield of paddy is larger than when the land is irrigated by other means. This answer would be a satisfactory one, if it were true that the increased yield was sufficient to enable the cultivator to pay the additional water-rate. The canal officers assert that this is so, and departmental experiments are made every year to show the increased yield per acre of land."

It will perhaps be convenient to take up the question of the yield of irrigated crops, and then to pass on to the alleged interference with the old system of irrigation by aharas, which it may be remarked were generally inefficient and frequently useless. Such as they were they cost a great deal of labour, usually unpaid, to maintain. The Hon'ble Mr. Halliday remarks* that the administration of the *ahara* system of irrigation by the people themselves was not a success.

* Minute, dated the 15th June 1858.

29. Before discussing the subject, it is right to remark that crops were not selected for experiments with a view to establish any particular result. It was expected by canal officers at least that any set of experiments would show that the yield of rice crops regularly irrigated would exceed those which depended on the rainfall or an *ahara* also practically so dependent as being supplied from a catchment basin of a limited extent.

30. The result of the experiments made by canal officers in each year up to 1886-87 is shown in a table in the Sone Canals Committee's report. In 1887-88 the results were as shown in the table below—

Volume I, page 13, Section 32.

IRRIGATED WITH CANAL WATER.			IRRIGATED FROM OTHER SOURCES.		
Number of experiments.	AVERAGE YIELD PER ACRE.		Number of experiments.	AVERAGE YIELD PER ACRE.	
	Grain.	Straw.		Grain.	Straw.
169	Mds. s. 17 27	Mds. s. 39 18	165	Mds. s. 10 30	Mds. s. 23 27

The results from the year 1880-81 to 1887-88 are as follows, taking grain only into account :—

I.—Canal irrigated dhan—1,227 experiments, average yield per acre of unhusked dhan—$16\frac{5}{20}$ maunds.

II.—Irrigated from other sources—1,030 experiments average yield per acre of unhusked dhan—$12\frac{9}{20}$ maunds.

These experiments, it must be noted, were both as regards canal irrigated dhan and dhan otherwise irrigated intended to show the yield of *average* crops.

31. Whilst not claiming that every experiment was conducted with such precautions as would ensure absolute accuracy, the Superintending Engineer maintains that taken together the experiments made represent "very fairly the actual state of things." It should be noted that in 1880-82 the advantage in favour of canal irrigation was very trifling in other years it was more considerable, and the Superintending Engineer's contention is that these results are substantially correct.

Volume I, page 98.

32. In 1888-89 there was a general failure of the rain throughout Behar, and the good result of canal irrigation is thus described by the Commissioner of Patna :—

No. 5976. of the 26th September 1889.

"The Sone-Canals have been a great boon during the year to the districts irrigated by them. But for them there would have been distress and scarcity, the inevitable result of the failure of the rain in September and October. The crops generally, where canal water reached them, were good, but they failed almost entirely elsewhere."

Such is the opinion of the chief Civil Officer in the Patna Division, based on reports from district officers, which were necessarily more than ordinarily carefully observant of this point to which the scarcity in Behar had drawn public attention.

33. The above is an opinion. There are, however, solid facts to go on. It was felt, in view of the hesitation expressed by the Committee in accepting the results of experiments carried out by canal officers, that it was desirable, for one year at least, to have experiments carried out by an officer independent of the Irrigation Department. Mr. H. Luson, C.S. was the officer selected to report on this and other matters connected with the advantages or disadvantages resulting from irrigation. The Superintending Engineer asked for the co-operation of Messrs. Burrows, Thomson, and Mylne, and canal officers were instructed to invite zemindars, ryots, and others interested to attend the experiments carried out by canal officers, and, as a matter of fact, they did so, the Sub-divisional Magistrates being also frequently present. The instructions issued were that *good crops* should be selected and that ordinarily the crops should be weighed on the field.

34. The results of the experiments are shown in the table following:—

Crop.	Name of officer conducting experiments.	Number of experiments.	Average yield, dhan	Number of experiments.	Average yield, straw.
			Mds. s.		Mds. s.
Transplanted Aghani dhan	Mr. H. Luson, C.S. ...	25	33 39½	25	47 17½
	Messrs. Burrows, Thomson, and Mylne ..	26	31 6½	26	52 12⅝
	Canal Sub-divisional Officers	33	35 8½	31	68 14⅞
	Canal subordinates ...	138	31 30 1/16	134	53 8½
Kartika dhan	Mr. H. Luson, C.S. ...	3	35 1½	3	46 36⅝
	Messrs. Burrows, Thomson, and Mylne ...	26	26 37 5/16	25	46 6 1/16
	Mr. G. C. Macconchy, C.E.	2	31 4½	2	56 29½
	Subordinate, Arsion ...	1	14 10½	1	33 0
Broadcast dhan	Mr. H. Luson, C.S. ...	2	23 23	2	31 32⅝
	Messrs. Burrows, Thomson and Mylne ...	1	23 14	1	36 33
	Canal Sub-divisional Officers	5	37 11⅝	1	54 0
	Canal subordinates ...	2	33 7½	2	39 13½
	Average ...	261	31 32 5/16	253	54 32½

The above table is abstracted from a note by Mr. H. Luson, dated the 4th February 1890, which was published in the *Calcutta Gazette* for the 3rd April 1889, in which the whole of the experiments, whether made by himself or others, were analysed.

Of the 261 experiments made on the yield of dhan, 80 were carried out by Mr. H. Luson and 52 by Messrs. Burrows, Thomson, and Mylne. The remainder were carried out by canal officers and subordinates.

35. The evidence recorded by the Committee is wholly to the effect that the yield of dhan is less—considerably less*—half what it was under the old system, Mr. Mylne alone† stating that he refrained from giving an opinion on the question because he had no data to enable him to speak positively on the subject, but adding:—

* Volume I, page 15, complaint 37.

† Volume II, page 203.

"I may state, however, that the general opinion of our tenants is that since the introduction of canal irrigation the produce of all crops has been considerably reduced."

The statements made were not infrequently emphasized by the declaration that the witness would be glad to cancel his five-year lease.

Volume I, pages 15, 16, and 17.

The evidence recorded by the Committee is, as a matter of course, to some extent at least influenced by the consideration that the witnesses were mainly the buyers of the commodity sold by the canal officers. They naturally desired to purchase at a low rate and on conditions favourable to themselves, and the unanimity of the testimony which is commented on by the Committee is, from this point of view, not remarkable. In other matters it is not infrequently found that would-be purchasers are not undesirous of obtaining what they require as cheaply as possible, and that it is not their habit to extol the merits of the contemplated purchase.

Volume I, page 17, paragraph 38.

36. It may be that there is a prejudice against the use of Sone water for irrigation which has been handed down from generation to generation, but the prejudice did not, as is expressly stated by Dr. Buchanan Hamilton 80 years ago, prevent "industrious persons watering their lands from the Sone with the utmost success, though the land is poor," and it has equally little practical effect now.

Volume I, page 17, section 36

The Committee remark that—

"The impression entertained by the cultivators is apparently due to their involuntary comparison of it with other fertilizing agencies of superior quality. The only way to test the correctness of the impression is by systematic experiments scientifically conducted by independent agency."

Volume I, page 17, section

The fertilizing agencies mentioned are the river Ganges and old wells; the former is inaccessible for kharif lands commanded by the Sone Canals, and the latter are not used, to any extent, if at all, for rice irrigation.

37. An attempt has been made to satisfy the demand for experiments carefully conducted by independent agency with the results already shown.

The assertions made before the Committee were to the effect—

Complaints 37, 79, 92, 110, 112, 113, 136, Volume I, pages 15 and 16.

I. That abundant crops could not and never were produced by land irrigated by canal water.

Complaints 53, 90.

II. That the producing power of the land had deteriorated owing to the use of canal water.

Complaints 43, 53, 109, 111, 113, 117, Volume I, pages 16 and 17.

III. That certain descriptions of soil, especially *kewal*, are not suited for irrigation by canal water.

These allegations will now be considered in some detail in the light afforded by the experiments carried out in 1888-89.

38. The first assertion is, it is considered, sufficiently disposed of by the table already given. An average yield of 31 maunds 32 9/16 seers per acre over all descriptions of dhan, all kinds of soil, and all methods of cultivation can scarcely be taken as other than positive proof that good crops can and are, under certain circumstances, produced by canal water. In the case of superior cultivation, *i.e.* transplanted *aghani* dhan, the average yield was within a fraction of 34 maunds in the case of the experiments carried out by Mr. Luson, and 35 3/20 maunds on those carried out by Canal Sub-divisional Officers, evidently, Mr. Luson remarks, "because, taking a very small number of experiments each, they were mostly able to choose the very best crops." Instances of lands yielding crops producing a yield of 39 maunds and upwards per acre were not rare, the greatest yield being 44 maunds 8 seers. It must not be forgotten that these experiments were avowedly on *good* crops. The question of *average* yield will be considered in connection with rate. Here it may be mentioned that Mr. Luson estimates the average yield of canal irrigated crops for 1888-89 at 18 7/10 maunds, which is two maunds in excess of the result of canal officers' experiments to date.

Mr. Luson's note, dated 4th February 1889, paragraph 6.

39. *II.*—The experiments referred to in the paragraph above were on lands under long lease. In 23 out of 25 of the experiments carried out by Mr. Luson on the yield of *aghani* dhan, "canal water had been continuously taken for nine years or more. Of the remaining two, in one canal water had been used for three years and in the other never before. The results of these two are slightly below the average of the 25."

In the great majority of the remaining experiments water had been used for seven years and upwards, Mr. Luson concluding his remarks* on this subject by observing that—

* Note, dated 4th February 1889, paragraph 12.

"In fact the experiments upon transplanted *aghani* dhan have been generally upon lands continuously irrigated by canal water for a number of years, and it is therefore impossible from the returns to compare the results of the continued use of canal water with those for lands to which it has not before been applied."

The only possible conclusion seems to be that the benefits produced by using canal water have been so great that when once they have been experienced the cultivator is unwilling to forego them.

40. *III.*—Turning to the third allegation, the unsuitability of certain descriptions of soil for canal irrigation, the fault—if there really has been a falling off in the yield of fields belonging to particular cultivators—appears to be more with the cultivator than with the canal water. In the case of 16 experiments carried out by either Mr. Luson, Messrs. Burrows, Thomson, and Mylne, or Canal Sub-divisional Officers, the average yield of *aghani dhan* grown on *kewal* soil was 34 maunds 15 7/8 seers per acre. It is true that a yield better by about 10 per cent. was obtained from 30 experiments on the soil

Mr. Luson's note, paragraph 11.

ows as *baimat*, but there is nothing to justify the allegation the *kewal* soil had ceased to be productive. The fact is no bt as stated by Mr. Luson—

From these tables it is clear that sandy soils are somewhat better the cultivation of dhan than clayey soils: they would seem also e better than loamy soils. The results are in accordance with general opinion throughout these districts. They prove also that y good dhan can be grown upon clayey soils."

41. It was very generally stated by the witnesses whose evidence is alluded to in* paragraphs 35 to 37 of the Committee's report they were desirous of cancelling their five-year leases llowed to do so. The Superintending Engineer has been ted with powers to cancel these leases provided all the natories apply to that effect. From the revenue report the Sone Circle for the current year, it appears that nine ses only, covering 1,456 acres, had been cancelled up to the April 1889, and five for 529 acres have since been cancelled. single application has been refused, nor, provided it is ferred by the 25th June, before the season has commenced, would it ordinarily be declined in future. An offer† by the Superinding Engineer on the 15th October 1888, to cancel a se for 512 acres at the end of the Kurmuri distributary, to ich water could not be supplied owing to the criminal duct of adjoining villages, was indignantly refused, as it olved the loss of canal water in the year following.

Volume I, pages 15 16.

† *Calcutta Gazette*, 9th January 1889.

42. Specific replies to the complaints quoted at pages 15, and 17, Volume I, will be found in the Engineer's reports. regards Nos. 34 and 35, a subordinate of the Department s imprisoned in 1888 for being concerned in illicitly ing water to these villages, which consequently could not assessed, and in nearly every one of the remaining cases ther five-year leases have been applied for. Adverting to ness No. 136, the following extract from a report by . Stephen, dated the 20th June 1888, deserves attention :—

As regards the evidence quoted by the Commission in support of general opinion as to the deterioration of crops by canal water, desire to call particular attention to the evidence of witness 136, Shah Mahomed Wahidudin (page 16 of report), who has n described as a respectable Mahomedan zemindar of good ily. At the very time this witness gave his evidence before the mmission, he had applied to the Executive Engineer, Eastern e Division, under section 50 of Act III (B.C.) of 1876, to acquire d and construct a village channel for him at an approximate cost Rs. 400, to irrigate about 400 bighas of land, which at present not be irrigated from the canal. The water-rates on the 400 has will be at least Rs. 500 a year. It seems to me passing strange t, if Shah Mahomed Wahidudin derives no benefit from canal ter, he should be desirous of introducing canal irrigation into his age, when he might construct an "ahra" with the cost of the posed village channel, and save the yearly tribute of Rs. 500 ich he will have to pay as water-rates.

43. In connection with this subject, the only further point which it appears necessary to bring forward is the extension of rice ltivation. That this change is in some respects not bene- al may be admitted, but, as remarked by the Committee, s fact is unquestionable, and there must have been some ry strong reason to induce so conservative a class as the bar cultivator to so radically diverge from his previous stoms. The cause of the alteration is thus explained by r. L. Mylne in a letter, dated the 30th June 1888 :—

Volume I, page 31, Section

It is necessary to explain here why canal water has been appreciated by the cultivators on the Jugdispore estate, and for this purpose attach to these remarks a tracing of this estate. It will be seen at the area is divided into two portions—

(1) That coloured green which, under forest 27 years ago, was rapidly cleared and brought under cultivation within a few years subsequently.

(2) The former settled portion coloured crimson.

For the irrigation of the jungle portion there were no ahurs, but were constructed between 500 and 600 masonry wells, which, till the vent of canals, sufficed for all the requirements of the cultivators. here was then hardly any paddy cultivation.

In the second or village portion we put into thorough repair and extended existing ahurs, which had become well nigh useless, besides constructing entirely new ones.

The adoption of canal irrigation was rapid and general all over the jungle mehal, resulting, after a few years, in an almost entire change from dry weather to wet weather crops, which could not be raised by well irrigation. The transformation has been so complete and thorough that only the absolute refusal of canal water for paddy would compel the ryots now to forego the cultivation of that crop. In the settled villages surrounding the jungle mehal canal irrigation was not extended or developed so rapidly because of ahur irrigation. But when, in seasons of deficient and uncertain rainfall, ahurs failed, the cultivators of these villages made a general and persistent demand for canal water, and we were compelled to extend our system of channels to meet their wants

The fact that an efficient canal, such as the Behea Branch, was constructed through the entire length of the Judispore estate, so compact as it is, was a potent factor in the development of canal irrigation and the disuse of ahurs. "Here is a constant and ampel supply of water," thought the ryots, "available from the end of June to the end of October: let us give up the uncertain irrigation from ahurs, which fail us either at the beginning or the end of the season, and take canal water." It frequently happened that these villages would not apply for canal water till the ahur failed in respect of one watering. They were then supplied with canal water, and, finding that they had to pay as much for one watering as if they had irrigated throughout the season, they naturally decided to depend entirely upon canal water and forget their ahurs. The question arises—would ahur irrigation have been put aside if a small charge had been levied for one watering or for refilling the ahurs?

The case in this estate at any rate appears to lie in a nutshell. Is it credible that *rbai* cultivation would have been exterminated and *ahara* irrigation abandoned unless the yield of canal irrigated rice was satisfactory—in fact, unless the alteration involved a profit to the cultivator at least, and indirectly to the zemindar?

44. So far the yield of canal irrigated rice has chiefly been considered. The main head "Canal *versus* Ahur irrigation" will now be examined. A continuation of the extracts from Mr. L. Mylne's remarks will show the grounds on which canal irrigation is preferred :—

For some years past a number of these villages have managed without canal water, but the bulk of them, for various reasons, cannot. Our policy as regards these villages has been to co-operate with the ryots, by strengthening and improving the ahurs when and where they can, with confidence, forego canal irrigation, and revert to their former methods.

One of the advantages of canal irrigation has not been anywhere mentioned, that is, the comparative certainty of the supply, in most places easily accessible to canal water, for raising paddy seedlings and their subsequent transplantation. With the aid of canal water the ryot may do this work whenever it suits him and whenever the time is seasonable and auspicious, whereas formerly he was dependent upon uncertain rainfall.

45. There is a further special case quoted by the Committee which appears to go to the root of the matter, and is accordingly quoted with the Committee's remarks at length—

* Page lxvii, Appendix III.

"And in regard to a particular village, he writes* :—

"I may mention here that when visiting mouzah Belgaon, one of our villages, the other day, the ryots asked me to thoroughly repair the village ahur so as to relieve them of the necessity of paying Rs. 6,000 yearly in water-rates. They have no complaint against either the assessing or collecting departments, for they have always had a full supply of water, and they pay rates without difficulty. They have entered into a five-year lease among themselves, as contractors, for nearly the whole cultivated area held by them. We are not parties to the contract. The area of the village is nearly 7,000 local bighas, and the gross yearly collections, including Government cesses and putwaries' *neg*, is Rs. 19,000. It would seem that they have begun to doubt whether, if the ahur is thoroughly repaired by us, it would be necessary for them to purchase Rs. 6,000 worth of canal water every year. The village ahur was exceedingly efficient and reliable, but fell into disrepair owing to the adoption of canal irrigation. It is probable, however, that in order to save to the village the large sum of Rs. 6,000 annually, we will put the *ahur* into thorough order. Our only fear is that the ryots may miss the regularity and convenience of the water-supply given by the canal to this village.

"We invite particular attention to this evidence. The village of Belgaon is one to which the Canal authorities have always pointed as a specimen illustration of the benefits conferred on the country by the canals. The outturn of rice is ample, the supply of water sufficient, and there is no friction with the Collection Department,

Here, if anywhere, it may be supposed that the ryots are contented with the present arrangement. But we now learn that in their own opinion and in the opinion of the zemindars of the village it is a matter for consideration whether the advantages of canal irrigation are not purchased at too high a price. To avoid the water-rates it is proposed to recur to the system of irrigation which prevailed before the canals were constructed."

The question which cannot fail to occur to the reader of the Committee's report is—How great must be the advantages derived from canal water when an efficient *ahara* is practically abandoned and Rs. 6,000 paid yearly for canal water? Irrigation in this village is not a thing of yesterday. Water has been continuously taken since the canals came into operation in 1876, so that the villagers, who are themselves the contractors, have had ample opportunity of appraising the value of the commodity bought. If in such cases it is profitable to use canal water, how much more must be the resulting advantages where, as in the vast majority of cases, the *aharas* have an insufficient gathering ground and are not kept in proper order. The Belgaon *ahara* is one of the very few provided with masonry escapes. There are probably not half a dozen others so furnished in the whole of the Shahabad district.

The inference is irresistible that canal irrigation must, even after the payment of water-rates, be highly profitable to the cultivators, especially to those who have not enterprising landlords like Messrs. Burrows, Thomson, and Mylne, able and willing to construct such works *aharas, &c.*, as are necessary for their prosperity.

Vol. I, page 17, section 41.

It is perhaps necessary to observe that Belgaon is situated on the last reach of the Kunteya distributary, from which water is supplied in the *kharif* season, and that the canal water used in that village could probably within a short time be equally profitably utilised elsewhere. The demand for canal water in the *kharif* season is already practically in excess of the supply. The cultivators are not improbably reckoning on canal water being available as a *'dernier resort'* should the *ahara* fail. It is quite likely that such would not be the case, and that they would find that exemption from even a tribute of Rs. 6,000 a year had been purchased at too high a price.

46. Against Mr. Solano's opinion may be quoted that of Mr. Nolan, contained in a note, dated the 10th July 1888:—

"I may say that when I was Collector of Shahabad—an office which I held during the five years ending with 1884-85—no one appeared to doubt that irrigation had on the whole been profitable to the district. The system was then extending; indeed the area irrigated doubled during the period; and coincident with its extension was observable a degree of comparative prosperity clearly distinguishing the inhabitants of north Shahabad from the poverty-stricken population of the surrounding districts."

Even now the difference in the appearance of the villages on the Patna-Gya Railway and the Patna Canal cannot fail to strike the most casual observer, and Mr. Solano's practice does not, from the following extract from a report by Mr. Stephen, appear to be in accordance with his recorded opinions:—

Irrigation from ahurs.—I am not aware, with one single exception, of any ahurs which have been destroyed by the canals in the Gya district. More than 75 per cent. of the lands irrigated from the canals are very high and cannot be irrigated by flow from *ahurs*. These lands are all now sown with rice, whereas formerly only inferior crops such as *rahar, kodo*, &c., were grown on them. Where ahur water has been abandoned by the ryots for canal water, it is because they prefer canal water and can depend on a constant supply. Last year it was at the special written request of Mr. G. L. Solano, of Arwal, that I executed a five-year lease in, and supplied water to, village Bugpore, pergunnah Arwal. This village in former years used to take canal water and had a five-year lease, but in 1885-86 and 1886-87 it was unable to get water, as the village is situated far down the Malli distributary. There is an ahur in this village. In a second village of Mr. Solano's, Pooran, where also Mr. Solano asked for a five-year lease, I was unable to grant the lease as I could not supply water to the village, it being situated very far down the Khojassa distributary.

47. The complaint that *aharas* were injured by the can and that no compensation was paid, is supported by t specific instances only—

I.—That of the Ghoosia bund. This embankm was ordered to be cut by the Collector un the provisions of Act II (B.C.) of 188 dangerous to life and property, not be provided with masonry escapes and no lon protected by embankments higher up the ri Kao, the embankments having disappear There would have been a strongly contes legal question as to the compensation paya and the persons liable when the zemindar hi self settled the matter by altogether declin to receive any compensation which might charged to the public revenues. The remova the embankment had no immediate connect with canal irrigation. The liberality and pul spirit displayed by the zemindar in the mat were cordially acknowledged by Sir A. Eden.

II.—That of the Domraon bund which was remov by the Maharajah himself as dangerous to t town, when all the bunds across the Kao abo it, by which it was formerly in some measu protected, had been abandoned. There w always the risk of a breach, in which case t town would have been flooded.

The Superintending Engineer's statement that no spec action has been taken by Canal offic in reference to *aharas* with the exce tion of the two mentioned above can scarcely be impugn though it is not denied that in many cases inconvenience, a occasionally even actual loss, resulted from the construct of canals and distributaries. Such injuries as were suffer were occasioned from 10 to 20 years ago, and compensati should have been claimed at the time. It is impossible say now without careful enquiry whether compensation w paid in all cases. There is no doubt that in some it w neither claimed nor paid.

Volume I, page 121.

48. One other instance, which is given as an examp of how the *aharas* have been "inte cepted and destroyed," will be refe red to under the head Drainage; an when the question of rates is discussed, it will be show that there are strong grounds for believing that the irrigatin capacity of many of the *aharas* has actually been increase by the canal water which drains f from irrigated rice fields, and is inte cepted by these *aharas* and again us for irrigating crops not liable to assessment.

Volume I, page 24, paragraph 64.

Sone Circle Revenue Report for 1889-90, page 11.

Two other points may perhaps be mentioned—

I.—That as regards the village of Ekwari, prominent referred to in a note to page 13, Volume I the report, and again at pages 22, to 56, M Geo. Fox (who has been Messrs. Moran a Company's Agent since they acquired t village), states (paragraph 27 of Mr. Odlin di-sent) that no application for a syphon h been made by them.

II.—That the three villages referred to by Mr. Solan are unfortunate beyond the area f which water is ordi narily available in the *kharif* season. Two o of the three have, however, had one crop or oth under irrigation every year, 1,828 bigahs havi been watered during the four years endi with 1888-89.

* Volume I, page 17, section 41.

49. The Sone Canals have developed into channels chief utilised for the irrigation of rice, not altogether in accor ance with the expectations of the Engineers who design

them, and, possibly, not in the best interests of the people if other than financial considerations are taken into account. It is, however, submitted that the facts brought forward show that for this purpose they are efficient, and that the contention that canal irrigation is other than voluntary, or, as compared with *ahara* irrigation, not profitable to the cultivator, rests on no solid foundation.

Canal versus Well irrigation for Rabi.

50. The Sone Canals have so far not been successful in regard to the irrigation of *rabi* crops. These crops form approximately 10 per cent. of the area under five-year lease, and to this extent *rabi* crops are probably regularly irrigated; but the annual leases which vary in amount from 15,000 to 70,000 acres have always been disappointing. Taking into account five-year leases the largest area ever irrigated was 129,012 acres in 1887-88 which is scarcely one-third of the area to which water could without difficulty be supplied. *Rabi* irrigation has never recovered from the disappointment which the cultivators suffered in 1877-78. They gave it a trial, and the result, partly owing to their own inexperience and partly owing to natural causes, was disastrous. The water was easy to get and the land was flooded to the injury of the crops. There was a pest of caterpillars which destroyed the pulse crops and the wheat was injured by blight. Barley in fact was the only crop which escaped. Large remissions of water-rates were made by Government, but the landlord's rents were, except in a very few cases, exacted as usual.

The water-rate for *rabi* is unquestionably high, and has doubtless an injurious effect both in respect to Government and the people in preventing water which is available being turned to account.

In suitable localities canal water is used for irrigation even at the cost of considerable labour. Lands bordering the Jehanabad Distributary are every year irrigated, though the water has to be lifted twice and in places three times, entailing a cost in labour probably equal to the water-rate.

51. The result of the experiments made to date on *rabi* crops is as follows:—

Crops.	Number of experiments.	Canal irrigated crops, average yield per acre.	Number of experiments.	Irrigated from other sources, average yield per acre.
		Mds. srs.		Mds. srs.
Wheat ...	495	11 1	473	10 31
Barley ...	57	10 34	58	12 21
Wheat and barley ...	117	9 25	106	9 37

Wheat therefore apparently produces as much grain if irrigated by canal water as by the wells usually available, whilst in the case of barley canal water does not seem to give good results. So far as the experiments go, there is, however, nothing to show that as regards one staple crop canal water might not be much more largely utilised, and probably will be if the rate is made more favourable.

52. That canals in places where there is much percolation render the construction of *cutcha* wells in their proximity impossible is admitted. It is, however, only in parts of the Patna Canal that this difficulty occurs, whilst on the other side owing to the percolation such lands frequently require no irrigation at all. There is no remedy: the canals, it may be hoped, will gradually become more watertight.

Volume I, page 20.

53. The difficulty with the Opium Department was not general: it was most felt in Patna and Gya and the east of Shahabad. The number of aqueducts applied for—and the application comes through the Opium Department—has not been very considerable, and many of them are at little used. The objection entertained to these by Canal officers had little reference to the irrigation of opium. The crossings can be, and, as a matter of fact are, used for irrigation generally; artful contrivances of one kind or other being resorted to. There is the temptation, which the late Sub-Deputy Opium Agent of Shahabad had to admit was generally irresistible, of taking the first and sometimes the second watering from the canal, a course leading to disputes the canal officers were anxious to avoid. Experience has proved that the Canal officers were right in considering that there was no general demand for crossings, but it certainly would have been better if they had provided such as were actually required without pressure from another department.

Marginal note, Volume I, page 20, paragraph 44.

Obstruction to Drainage.

54. This matter has throughout received the most careful attention from all the Engineers who have been engaged in the project.

That all drainage works rendered necessary by the canals should be carried out is admitted. On this point there is no difference of opinion, Mr. Odling observing* that—

* Volume I, page 119.

"Any actual obstruction is remediable, and ought to be remedied, provided always that as a matter of fact it exists. Anything like impeded drainage is under all circumstances and under any conditions an evil from an irrigation point of view, as tending to water-log the land. Liberal provision was made on the general estimates for any drainage works that might be found necessary. The fact of drainage being impeded cannot be hidden, though it may happen that it does not at once come to light, the flow in years of ordinary rainfall being absorbed or utilised before it reaches the canal bank."

The fact is, and it cannot be too strongly insisted on, that the Engineer's objection to *aharas*, which is alluded to several times in the Committee's report, is based not on their capabilities as irrigating agencies, but because as a *condition of existence* they must obstruct drainage. Injurious as the influence of embankments, necessarily aligned across the drainage of the country and, except in rare cases, not provided with escapes must be at present, it would be greatly intensified if canal water was regularly poured into them as suggested in section 232 of the report, and it is for this reason that the Superintending Engineer* advocates caution in dealing with such applications.

* Volume I, page 96.

55. One special case is referred to by the Committee in paragraph 64 of their report. In this instance it is not denied that drainage was interfered with; but, as stated by the Committee, it also—

Volume I, page 24.

"Affords evidence of the action taken by the Engineers to remedy the obstruction which their own works had in the first instance occasioned"

Our sins have certainly found us out. There is, however, no other such case in the whole system. There has equally been no hesitation in remedying the evil appalling to an Engineer as the number of works required to counteract the mistake made has been. One of these only would have been wanted if the correct alignment, *i.e.*, an extension of the Sikrour Distributary, had originally been preferred.

The only condition required precedent to the construction of a syphon is that water shall actually be impounded: wherever this can be shown to be the case, even to a slight degree, there will be no hesitation in providing such a work: where, however, there is no obstruction, no possible good can result from expending public money on the construction of works which, when finished, would be useless.

No trace can be found of most of the petitions for syphons referred to in the report. In a matter of the kind where influential landholders are concerned, it is surely not asking too much if, in cases where their wants are asserted not to be attended to, they are asked to communicate with the Superintending Engineer.

56. In August 1888 the rainfall was exceptionally heavy, and whatever defects in drainage provision existed became apparent. A note by the Superintending Engineer, giving, as suggested by Mr. McNamara,† a list of all cases where the canals or

† Volume II, page 330.

distributaries were breached or cut is attached. The note also contains information as to the drainage works that have been carried out since the date of the Committee's report, and as to what works are known to be still required. A perusal of the note will show that the Committee's recommendation, expressed in the concluding part of section 25 of their report, has received that full attention which it is quite admitted it deserves. Material progress has been made without neglecting the care and caution expressly stated to be necessary, and which has been the real cause of any apparent delay in dealing with the question.

57. Before concluding my notice of this part of the report, it is perhaps desirable to allude to the fact that the drainage works carried out are in many cases of immense benefit to unirrigated tracts of country, it being necessary to deal with the whole area to be drained irrespective of the precise parts thereof affected by the canals. Such a case is the Bachere drainage cut which has cost Rs. 57,763, and which includes a weir by which the water in the *aharas* above can be kept at any desired level. A similar work has just been sanctioned in connection with the Chowsa canal.

Obstruction to District Communications.

57. The Committee refer to the obstruction to district communications stated to have been occasioned by the canals. The case is thus put by the Magistrate:—

"Existing roads are injured by the side cuttings being used as village channels, by unauthorised channels being made across them, and by flooding from surplus canal water. Potential roads are affected by the canals and distributaries occupying the water sheds wherever practicable."

Of actual injuries stated to be caused to the roads, the road authorities are to a certain extent responsible for the first two, which can only be stopped by criminal prosecutions. Should there be real fear of scarcity, the local pressure is such that they are indisposed to object to any means of irrigation. It has been decided that permanent road crossings will for the future be provided by Government. It is unlikely that any considerable addition will be made to the length of the roads in the district; in fact some roads made in the famine of 1874 have been practically abandoned. The fact that the canals have, as far as practicable, been kept on the ridges, which might possibly in future years have been utilised as roads, is hardly a sufficient reason for the District Board claiming what is *de facto* heavy pecuniary compensation. It is essentially a case of "first come first served."

58. The Committee observe—

"We have seen for ourselves that the canal embankments and towpaths are now largely used as means of communication by the people, and that the convenience of the canals in this respect is appreciated. They are suitable for foot-passengers only, for as a rule the banks and berms are too narrow for wheeled traffic. During the rainy season only it is necessary to impose certain restrictions for the protection of the canals which cannot be relaxed.

To the statement of policy contained in the above extract, the canal officers have never taken exception, but as berms vary in width from 5 to 10 feet only, and would soon be absolutely destroyed by heavy carts, they have been compelled to object to wheeled traffic except in a few cases in which, as a matter of public convenience, the berms of some distributaries or parts of distributaries are kept open during the dry season for light vehicles only, such as ekkas. That a very distinct assertion of the right of Government to control the use of the lands acquired and roads formed at its expense is sufficiently obvious from the following resolution of the Shahabad District Board:—

Extract from the Proceedings of a Special Meeting of the Shahabad District Board, held on the 27th of March 1888.

"Read the application of Syed Mohamed Jan and others for a bridge over the Kao Nuddi, and the papers connected therewith.

"Resolved that a sum of Rs. 2,000 be provided in the budget estimate for 188 -90 for making a road from Koath village to the Doomraon Canal, and that representations be made to the Irrigation Department to throw open the Doomraon Branch Canal spoil bank, between Tendoni on the one side and a point opposite Karanserai on the other, to public traffic as of right."

In this case an arrangement for light traffic was arrived at, though the claim to the use of the berms as of *right* was necessarily repudiated.

The Superintending or some other Engineer connected with the canals would, in the light afforded by the Committee's remarks, probably be a more efficient representative in the District Board than the Irrigation Deputy Collector, who has, for some reason not known to me, been selected apparently to represent the Public Works Department.

DETERIORATION OF PUBLIC HEALTH.

59. The statistics available on this subject are not in themselves very reliable, and there is the further difficulty that the divisions into which the resulting figures are abstracted are by no means conterminous with the irrigated area.

The actual facts are probably tolerably fairly put in the following extract from the report of the Civil Surgeon, dated the 13th January 1880, which was furnished at the request of the Committee:—

Volume II, page 319-25.

"*Effect of canal irrigation.*—In conclusion, it seems to me from a study of such statistics as are forthcoming on this subject that the canal irrigation of this district has without doubt intensified pre-existing disease-producing influences.

"It is a mistake to assert, as is sometimes done, that malaria fevers were almost unknown previous to the canal period. The fact is that the district has been subject to malarial fevers for a very long number of years, and it is also, I believe, a fact that in recent 'epidemic years' the district suffered, certainly to a greater degree, but in common with neighbouring districts.

"I fear it cannot be denied that obstructions to drainage have been caused by canals: but numerous other obstructions exist from bunds and embankments, leaving water after heavy rainfall stagnating in barren channels.

"Then it is said that water is wastefully used, and I can vouch for its being *injuriously* used. The cultivation of crops, such as sugar cane, requiring very frequent flushing, has enormously increased since the canals were made. I saw a village a few days ago close to the canal, about 20 miles from Dehree, on the side almost hidden by jungle and undergrowth, and surrounded so as to be almost lost to view by dense crops of sugarcane. Any one with any knowledge of hygiene must know that it is impossible to retain health with such surroundings.

"I think it must be recognised that land surrounding towns and villages must not be irrigated from canals. I need hardly point out how injurious to health damp dwellings are.

"*Summary.*—To sum up, I should say that the effect of the canal system has been of a mixed nature. On the one hand they are said to have placed the district beyond the danger of famine (although I do not think this to have been proved, if population goes on keeping pace with production, as before last census, when an increase of nearly one-fourth of a million was found); by offering a means of sowing the crops in years of drought, they have increased productiveness, and made fertile what was previously barren.

"They have without doubt benefited the people by affording means of easy communication throughout the district, and one chief element of good has been the introduction of a good supply of water to places where formerly it was of very inferior quality.

"On the other hand, they have brought about such conditions as without doubt, promote the spread of diseases such as malarial fevers &c. These conditions can to some extent be improved. I have not been asked for an expression of opinion as to the remedies which suggest themselves. Much has already been done, I am told, to improve drainage channels, remove obstructions, and to prevent injurious use of water; more can still be done. But when all has been done that can be done, I fear that conditions favourable to malaria will continue to exist in years when the rainfall is above the average.

The extent to which drainage can still be said to be obstructed by canals is shown in the Superintending Engineer's note. Such obstructions never were numerous, and counted for nothing besides the *aharas* which have been in existence for generations. The main drainage channel of the district, the river Kao, was almost obliterated, there being no less than 14 bunds across it when the canals were commenced. Fever has followed—not immediately, but many years after—such blocking up of drainage channels

ough Bengal, and it would be no matter of surprise
ie usual result was experienced in Shahabad. There
were, as noted by Mr. McNamara,* in the extract quoted below, mitigating
stances which, however, by no means accord with the
l statement of the efficiency as irrigating agencies of
aras which pervades the Committee's report.

* Volume II, page 337.

ıst Mr. Cameron evidently referred are the numerous *aharas*
anked reservoirs that abound in the district. These have
possibly from prehistoric time—most certainly they were in
ce in the days of our earliest surveys of the country. How
ın these ancient reservoirs have so suddenly produced the new
eviously unknown results now attributed to them? It might
ered, because they have been put to new uses. In the old
s their limits were strictly defined as to area and time. The rain-
ber that drained into them was limited to the months of the rainy
son. As a rule, the supply was too scant for the requirements,
l in the case of abnormally heavy rainfall, when the surplus water
not pass off round the embankments, in the manner provided for
purpose, it almost invariably burst the embankment, leaving only
imited quantity of water in the reservoirs. And the water that
s subsequently used for irrigation had to be *lifted* for the purpose.
e labour exerted in the process was tedious. The area under irri-
ion and the duty of the water were strictly limited. There was no
ste and no indiscriminate flooding of the country. Long-establish-
custom had created ways and means for the distribution of the
er that are remarkable for the smoothness with which they work-

Now the irrigation season is indefinitely prolonged. Water
plied by the high level canals and distributaries commands every
rs, long after the cessation of the rainy season. There is no need
ift it, and there is not the same inducement to economise it."

The *aharas* are more efficient than before, more and better
ps can be raised, and rice cultivation has to a large extent
perseded financially less profitable *rabi* crops.

10. It is probable that districts under wet cultivation are
years of heavy rainfall less healthy than those in which
crop does not require that for many months the land
ll be covered with from 4 to 6 inches of water. To the
ent the health of the district has suffered by this sub-
ution, it may be partially ascribed to the canals which
e rendered rice cultivation on such a scale possible. On
other hand, as pointed out by the Civil Surgeon above, the
als have helped to meet an equally pressing danger, the
reased population which may even render the increased
ductiveness of the soil of no avail. The effect of the
ension of wet cultivation on the hygienic conditions of the
trict as opposed to obstruction of drainage, which *de facto*
rcely exists apart from the remaining *aharas*, cannot be too
ongly insisted on.

The Committee, it is noticed, are of opinion—

"That a stronger case is needed than now exists to justify inter-
nce by rule with the discretion which the cultivators now exercise
rrigating their lands as they please."

I am not prepared to recommend coercion in this respect,
, as stated by Mr Mylne, it is unlikely that anything
rt of—

"The absolute refusal of canal water would compel the ryots now
forego the cultivation of that crop."

Water is not now supplied for the purposes of irrigation
r Arrah, and there would be no objection to the Superin-
ding Engineer being vested with power to restrict or direct
refusal of permits for irrigation generally, or for irriga-
n in the *kharif* season only in specified places where proper
inage facilities do not exist, or where flooding to an objec-
nable extent is persistently carried on, or where the public
lth is apparently suffering.

11. There is another side to the question, as will be evident
m the following quotation from a note, dated the 10th July
8, by the Hon'ble Mr. Nolan:—

"The canals have given what was much wanted in many villages, a
ply of pure drinking water, and have so far been of great sanitary
. This must be taken as some set-off against the fact that they
ease moisture and probably facilitate the spread of malarious
r."

It should also not be forgotten that the wave of malarial
er, to which reference is made by the Committee, is not
fined to irrigated tracts, but is as rife in Bhuboah, where
there are no canals, and on Gya, where the tract irrigated is only a narrow slice along the Sone, as in Shahabad generally and it has now shown itself in Bhagulpore.

VALUE OF THE CANALS TO THE PEOPLE.

62. In the preceding paragraphs the value of the canals to the people has been more than once incidentally referred to, and there probably has never been a more striking instance of the benefits they have conferred than was experienced during the year 1888-89. There was scarcity approaching to a famine in Behar generally, and this is what Mr. Luson, C.S., who was specially deputed to report on the subject, says regarding the crop on the land irrigated by the Sone canals. It "has reached on the average a high standard of excellence, and stands out in high contrast with the sad picture of the almost total failure of the crop which depended upon rain-water alone, or rain-water stored in *aharas* with small local catchment basins."

He observes—

"As soon as I received my instructions, I rode, before the time of *dhan* harvest arrived, through a large number of villages unaffected by the canals. In the cases of small *aharas*, as the great majority are, I found a complete failure of the crop. Very little of it was worth cutting, even for the sake of the straw. In the cases of *aharas* with somewhat larger catchment areas, a few fields only were sufficiently watered (these were chiefly the malik's *zirats* and the higher caste cultivators'); and in the cases of some of the very large *aharas*, such as those at Belkhara in Gya, Hitampur in the Jagdispur estate, and Udwantnagar near Arrah, the area commanded by the *aharas* was all watered and produced a good crop, though more water would have improved it. But such large *aharas* as these latter can be counted upon the hand. The *dhan* crop dependent upon *aharas* this year, as far as I saw it, was a great failure. It was upon the whole much under 4 annas—probably about 2 annas—of the crop on canal-irrigated lands."

63. The value of the rice and wheat crops on the area irrigated by the Sone canals in 1888-89 alone exceeded 76½ lakhs of rupees, and it is not too much to say that half at least of this sum would have been lost to the people but for the canals. In the sum mentioned above no account is taken of other crops, such as sugarcane and barley of the value of 33½ lakhs of rupees, which benefited materially by canal irrigation. The total amount leviable as water-rates on crops of the value of 110 lakhs of rupees was 8 lakhs only, or about 7½ per cent. on the value of the crops irrigated.

PART III.—COMPLAINTS AGAINST ADMINISTRATIVE PROCEDURE.

64. The Committee commence by acknowledging that improvement has been effected in both the assessment and collection departments during the past two years. They say:

Volume I, pages 33, sec. 96.

"The improvement is admitted by several of the witnesses who gave evidence before us, and as a fact we find that the great majority of the individual complaints we have received relate to the events of past years."

It is in fact only necessary to refer to the complaints in which names are mentioned, when it will be found that reference is frequently made to events which occurred eight or nine years ago, into the merits of which any kind of investigation was impracticable. The improvement mentioned has since been more than maintained.

COMPLAINTS AGAINST THE ENGINEERING STAFF.

65. Under this head both "Assessment and blackmail," and "Unauthorised irrigation," separately noticed in the Committee's report, will be considered.

It has been explained (paragraphs 17 to 21 of this Note) that in the earlier years of irrigation in Behar an attempt was made to follow, as far as practicable, the system pursued in the North-West Provinces, that is, to depend on the patrol's register or *shudkar* as the basis of the demand statement. The introduction of five-year leases was the first decided attempt to dispense with the services of subordinates of this class in the assessment of irrigated land. The area under five-year lease for the last three years has averaged 200,000 acres,

out of an average of 313,000 acres irrigated yearly, so that approximately two-thirds of the area irrigated has been altogether withdrawn from the cognisance of the patrol for some years past. As will be explained later on, the procedure in the case of annual *kharif* leases has, to a large extent, been assimilated to that followed for five-year leases, and irrigation beyond the boundaries specified in the application has ceased to be assessed, so that the patrol's functions have been much restricted; in fact, so far as the assessment of *kharif* crops, his influence, which was always more restricted than would be inferred from the report, has altogether disappeared.

66. The complaints, to a certain extent endorsed by the Committee, have been that unirrigated lands have been assessed, that blackmail has been levied, and that the law and rules have been oppressively interpreted to the detriment of the people of the country. On the other hand, there is the conviction of the Engineer referred to by the Committee in paragraph 157—

Volume I, page 59.

"that Government is more ill-used by the cultivators than the cultivators by Government, and that instead of the cultivators being themselves oppressed they are rather the persistent trespassers and offenders upon the patience of a long suffering department."

The opinion given is quoted by the Committee as evincing a want of sympathy with the people, though (paragraph 180) it is not denied that—

"In some villages, especially Brahmin and Rajpoot villages, there is an everlasting struggle carried on to get water without paying for it."

Volume I, page 57.

It must be obvious to any one reading the report that a large number of the witnesses more or less resent having to pay anything more than a nominal amount for so common a commodity as water. As observed by Mr. Power,* the great majority of the witnesses before the Committee were Rajpoots and Brahmins—

* Letter No. 8491 of date the 31st August 1888.

"Castes who always claim special priviliges and resent being placed on an equal footing with working cultivators."

With regard to the assessment of unirrigated lands, the same officer observes that—

"Nearly all appeals have reference to unauthorised irrigation. When there is proper evidence in support of the assessment, it must of course be upheld. My conviction in such cases is that in most such cases the canal underlings have been bribed to wink at the malpractice, and that the Canal Sub-divisional Officer's vigilance alone has defeated the fraud; they come chiefly from the Bhojepore pergunnah."

The Canal officers were quite aware that efforts would be made to bribe these subordinates, and doubtless, as stated by Mr. Power, exception was taken when the unauthorised irrigation was detected and the people had to pay twice over, especially where an unsuccessful appeal was preferred.

67. The evidence on the subject of blackmail labours under two disadvantages: first, that it mostly consists of statements which were in no way sifted; and secondly, the bribe was frequently avowedly given with the object of obtaining some illegal object. That the statements made are far too sweeping is obvious from the appendices to the report: for instance in section 105 a pleader's evidence is cited as to the corruptness of the overseer, which was expressly denied by witness No. 74, who is believed to be his own servant. Other witnesses, Nos. 86 and 90 may be taken as examples, refer to the incorruptibility of a particular sub-overseer. Another pleader (section 122 of the report) was equally mistaken, the village mentioned having been irrigated, in the first instance without permit, in the very next year.

The subordinate staff employed on the canals are probably neither better nor worse than those employed in other departments: whatever power they originally possessed has been, as already pointed out, largely reduced, and it is evident from Mr. Power's remarks quoted above that the bribes when given were, owing to the close supervision exercised, of little real use.

68. Replies more or less conclusive to the allegations made regarding assessments and unauthorised irrigation will be found in the reports of the Canal officers quoted in paragraph 3 of this Note; and as the remedy taken is of a nature to altogether exclude the possibility of the recurrence of such cases, it will probably be sufficient to allude briefly to the three cases brought forward by Mr. Mylne and commented on in sections 117, 118, and 119 of the report.

Volume I, pages 28-29.

In the case of the village Kishwa the Collector by no means admits the justice of the Committee's remarks. He points out that the assessees were in a position to know the proper procedure, and there was no apparent reason why they should deliberately allow the period of appeal to lapse and then seek a re-opening of the question. The Assistant Engineer concerned observes that at Rumnugger, between the 24th September and the 20th October, the only rainfall was one-tenth of an inch on the 9th of October, and that water was certainly required. The Collector, with all the facts before him, declined to interfere, and it can scarcely be fairly contended that the case was not considered by an independent tribunal.

Letter No. 8491, dated 31st August 1888. Note on paragraphs 157 to 163 of Committee's Report.

Note, dated 4th July 1888.

In the case of Banwar no appeal to the Collector was apparently made, the assessees accepting the Executive Engineer's order modifying the amount originally charged.

In the case of Chukwa, the Assistant Engineer points out that in the two years succeeding 1884-85 land was admittedly irrigated, and that his assertion is not that water escaped from five-year leased lands into the village, but that the water of about four channels was entirely diverted into the *ahara*. Under any circumstances, and whoever might be the appellate officer, the Sub-divisional Officer had an undoubted right to prepare a demand statement, and it was for forcibly resisting a Government officer in the execution of his duty that a prosecution was instituted. Different defendants were tried by three different Magistrates, with the result, upheld on appeal by the Judge, that convictions were in every case obtained: in fact, three independent tribunals took a different view of the case from that which commends itself to the Committee.

Different as is the aspect which these cases present from different points of view, there can be no question that it is neither in the interest of the people nor of the Canal authorities that such disputes should arise: there is the further fact, admitted in paragraph 21 of this Note, that the Canal officers were also to blame in permitting a supply of water through the outlets in excess of the requirements of leased areas, and the actual remedy taken has been to impose conditions which practically forbid unauthorised irrigation in the *kharif* season being assessed at all.

69. The instructions quoted at length below were issued by the Superintending Engineer with my concurrence, on a consideration of the most prominent defects noticed in the Committee's report. The Circular refers to other subjects beyond the one under discussion which will be referred to as occasion requires:—

Circular No. 1, dated Arrah, the 21st March 1888.

To Divisional Engineers.

The proceedings of the Irrigation Committee having shown that in some cases an alteration in practice is desirable and in others that the rules are not strictly adhered to, I have the honour to request that particular attention may be given to the following instructions:—

I. *Complaints.*—A separate receipt must be given for every complaint; those belonging to one village or for the same cause must not be lumped together in one receipt. One day in each week is to be fixed by the Sub-divisional Officer for receiving complaints, and it is expected that he will be present on that day to receive them, unless unavoidably prevented, in which case the silladar will be

thorised to receive petitions. The Sub-divisional Officer must also ceive petitions on any other day on which they are tendered, if sent at head-quarters. Executive Engineers must make arrangements to receive complaints daily, and petitions sent through the st are not to be refused on that account.

II. *Village channels.*—Great complaint was made that five-year ses were granted where no proper arrangements for the supply of ter existed. In future no permit is to be issued until proper and fficient village channels have been provided. No exception in s respect is to be made owing to money being deposited for a annel to be made by Government agency.

III. *Lands on bhaoli tenure.*—In the case of lands held on bhaoli ure, the zemindar's signature is to be obtained before that of the ots, and if it is refused, the ryots are to be informed in writing that ive-year lease will not be granted. Every such case is to be erted to this office.

IV.—*Five-year leases.*—No proliminary application for five-year se is to be received after the 1st of July; and in cases where, after ee months, the signatures of all the ryots cannot be obtained, the cial orders of the Executive Engineer are to be taken as to ether the lease should not be definitely refused All applications a five-year lease must be accompanied by an application at annual es if water is required to be given before the five-year lease permit issued. The number and size of the outlets will be specified in permit issued for a five-year lease, and no reduction in their mber or size made during its currency.

V.—*Unauthorised irrigation.*—The provisions of sections 78, 79, 80 of Act III (B C.) of 1876 are to be strictly observed. No authorised irrigation is to be assessed without the written order the Executive Engineer, and in passing this order it must be explily stated—

.—That the person by whose act or neglect the irrigation occurred not be identified, and

i.—That benefit has been derived. Where unauthorised irrigan has occurred through the negligence or with the connivance of anal servant, no assessment can be made. Irrigation from aharas, ich may have been filled or partly filled with canal water, is not be assessed. The aim of Canal officers must be to prevent unhorised irrigation rather than to detect and assess it when it urs.

VI.—*Outlets.*—In the definition of village channel the outlet is pressly excluded. It follows that the Canal officer is responsible the opening and closing of the outlet, and unauthorised irrigation urring through the outlet not being properly looked after cannot assessed. In the case of permanent outlets permits should be used where unauthorised irrigation is likely to occur, and in the e of temporary outlets their size should be adjusted to the areas plied for.

VII.—*Shudkors.*—The signature of the lumberdar should be en when land is for the first time entered in the shudkar, and the rol should make all entries in his register in the presence of the mberdar, or, where his attendance cannot be procured, in the prece of two or three leading villagers whose names should be noted. e shudkar should be frequently examined by the Sub-divisional icer, the silladar, and the sectional officer, and orders recorded rein.

It will be noticed that paragraph V clearly lays down the nciple that prevention, not punishment, should be aimed at, d paragraph VI affirms the responsibility of the Canal Officer the proper regulation of the supply through the outlet.

70. One result of the orders given was that in 1888-89, ,794 acres were leased whilst 69,621 acres only were assessed that it is clear that written applications had been filed where ter-rates were levied. These areas are those assessed at nual rice rates. There may be more criminal prosecutions future as recommended in paragraph 304 of the Comtee's report; but, so far as unauthorised irrigation is ncerned, it is proposed that in future, before water-rates der section 79 are imposed for *kharif* irrigation, the charge all be approved of by the Collector. In such cases more an ordinary rates should usually be imposed.

THE FIVE-YEAR LEASE SYSTEM.

71. The deliberate opinion of the Committee may be said be summed up in paragraphs 143, 144, which are quoted low—

"143. It is tedious to enter into such details; but it is necessary, order to justify our assertion, that some portion at least of the tension of five-year leases is due to other causes than the popularity the system.

"144. We are able to fully recognise the comparative advantages ich are enjoyed by the holders of five-year leases. These advanges are appreciated by cultivators who possess no other sources irrigation than those which the canal supplies. Among these the five-year lease system has extended by a healthy and natu process. But to the lands of others, who are not dependent on canals for irrigation, the five-year lease system has been extend by other means. The procedure followed has been marked by c stant pressure."

The individual cases quoted by the Committee will be commented on presently. In the meantime the following fa afford perhaps the most conclusive evidence that the Committ were in error in concluding (paragra 135) that the area under five-year le was due to any other cause than the increasing favour wi which the system was regarded by the people. The Superi tending Engineer was, in Bengal Government orc No. 1921. of date the 8th February 1888, vested wi power to cancel five-year leases. No single applicati has been refused. There leases, aggregating 1,456 acres, were cancelled in 1888-89, and five leases, aggregating 529 acres, in 1889-90. The area under five-year lease in 1888-89 was 200,102 acres against 210,555 acres in 1887-88, but applications for 15,050 acres were refused or not completed owing to the more stringent conditions as to channels and suitability of block insisted on. This year, 1889-90, the area under five-year leases will show a further increase. In fact, since the Committee sat, five-year leases for 65,500 acres have been concluded, and except where the Canal officers have raised objections, nearly every lease which has lapsed has been renewed. It is not denied that formerly assessments in cases of unathorised irrigation, a species of pressure not necessarily improperly applied, had some effect in inducing the cultivators to make a regular application for a five-years' lease.

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72. Turning to the instances quoted. Nonnur is selected by the Committee as a very special case showing the pressure exercised by Canal officers. The case appears in a very different light the Hon'ble Mr. Nolan, whose remarks, dated the 10th July 1889, are quoted below:—

"The only investigated case on which Mr. Cotton and Baboo Jai Perkash Lall rely to establish the fact that coercion has been exercised of a nature to justify the general reduction of rates is that of the Nonhur villagers, described in paragraph 140 of the report. 'Could anything,' they ask, 'show more conclusively than the circumstances of this case the extraordinary pressure which is being put on the people to induce them to take five-year leases?' 'We can imagine,' they add, 'no clearer case than this, to use Mr. Solano's words, of "forcing five-year leases down the throats of the people." The sole witness examined in support of this case, Bishoshur Roy, No. 50, opens his statement by saying: 'There are no means by which our village can be irrigated; there is no channel.' With reference to this, we must consider the Committee's observations:—'It is true that the village is situated by the side of the Bhojepore distributary, and that it is bounded north and south by villages which are already under five-year lease.' Now if the village lies actually on the side of a distributary, and not, like many less fortunately situated, some miles off, what are we to think of the witness who says there are no means of irrigation? He goes on to depose that he had never heard of any man of his village having applied for a five-year lease, whereas it was ascertained from other sources that no less than three such applications had been made, one for 400 bighas, in the previous month. In addition to this oral statement, there is the documentary evidence of a petition presented to the Engineer in charge, which contains the words described in the report as 'pathetic'—'we accept the five-year lease to avoid your annoyance.' The annoyance consisted in charging cultivators for surreptitious irrigation charges against which they could appeal, if so advised, to the District Collector. And their subsequent conduct proved that an overwhelming majority of the ryots, a majority to whom the Committee would give the power of binding the minority, really wanted the lease, as is shown by the following statement of Mr. Odling:—

The applicants have since had ample time to reconsider their position. Any influence which Canal officers might have possessed has, for the time being at least, disappeared, and the result is that since the sittings of the Commission at Dhungain, a formal application, signed by the holders of the 420 out of 450 bighas comprised in the block, has been signed, and will be submitted to me for sanction under rule 10, page 229, Irrigation Manual. The holders of the 30 bighas who have declined to sign were probably the only real opponents of the lease, and able to a certain length to carry their co-villagers with them.

"Many persons will, perhaps, be inclined, under the circumstances, to answer by a distinct affirmative the question of the members of the Committee—Could anything show more conclusively than this

rose the extraordinary pressure which is being put upon the people to induce them to take five-year leases? And if after a protracted enquiry this was the best evidence which the Committee found; if, with all the results of their investigating before them, they could not, as they say, even imagine a clearer case, what must we consider to be the character of the evidence in support of other allegations of coercion?"

Mr. Mylne does not give the facts on which he considers pressure was put upon the village of Chukwa, but it is clear from his letter of the 12th August 1886* that a majority at least of the cultivators of Jugdispore desired a lease, the difficulty not being with his tenants, but with rent-free holders. The lease has since been renewed.

* Volume II, page 172; also Mr. Ochiing's dissent, Volume I, page 99, paragraph 24.

As regards the other cases, it is clear that the real object of the Canal officers was to prevent unauthorised irrigation, i.e., to prevent a valuable commodity, the property of the public, being used without payment. Whether the lease was annual or five-year was not a matter of concern What was aimed at was the assessment in some regular way of land the crop on which was benefited by canal water, and the cessation of irrigation without application or permit. The mistake made, which has been fully acknowledged, was the facilities given for unauthorised irrigation by permitting the cultivators to allow a supply of water to flow through the outlets in excess of the legitimate demand for leased areas. This error was being gradually corrected, and during the last two years the Canal officers have, as they are legally bound to do, themselves taken charge of the supply of water through the outlets.

COMPLAINT OF DEFICIENCY AND IRREGULARITY OF WATER-SUPPLY.

73. This complaint is admitted to be now practically non-existent. It has disappeared with unauthorised irrigation. The Engineers have adjusted the outlets to the areas to be irrigated, and have temporarily stopped the supply when it was found that water was being used beyond the leased areas: in some cases they have instituted criminal prosecutions. There are still difficulties with regard to individual holdings when there are village quarrels, or where the more powerful men are disposed to oppress their weaker brethren. The absence of complaint on this head in the Jugdispore estate was in truth more due to the care and trouble taken by Messrs. Burrows, Thomson, and Mylne to see that the supply of water was fairly distributed and economically used than to any special consideration in the matter of supply shown to them. It has at times taxed even their energies to secure a fair division of a supply of water which, properly and economically used, was ample. Unfortunately there are many non-resident proprietors and—resident or not—no others who have an establishment competent and willing to carry out distribution arrangements so effectively as the firm named.

Pamphlet by Baboo Kandjhi Sahni, page 34:—"The supply of water was satisfactory, the prayers of the cultivators were attended to, and, generally speaking, the arrangements were good."

Volume I, page 46, paragraph 147.

74. The Canal officers can secure a proper supply of water to leases (blocks), but ordinarily the internal distribution must be managed by the lessees: at times a subordinate has been deputed to insist in the water not being monopolised by one section of the cultivators; but as regards particular holdings there will always, in the absence of influential and fair-dealing *lambardar*, be a chance of individuals suffering. So long as *lambardars* are remunerated their responsibilities in this respect can be enforced, and default can be in most cases be punished, though inadequately.

75. There remains the important question whether the supply allowed should be calculated on a *total absence of rain*, such as occurred in 1888, or whether a low average, say half to three quarters of an inch in the first ten days of October, should be reckoned on. In the proposals which will be made later on, the experiences of 1888 will be for the most part relied on; but the avowed object will be that in such years which are not of frequent occurrence (though those in which there is a scanty rainfall are) there shall be a difficulty in obtaining a full supply. The quantity of supplied will suffice, but there will not be the ordinary margin for waste, which, indeed, is then less likely to be permitted to occur.

76. In the earlier days of irrigation, before the results of past experience were available, permits were issued in the *kharif* season for irrigation in villages which it is now known cannot be satisfactorily supplied in a season of pressure on the canals, and for which leases are consequently now refused. An example of this kind is referred to by Mr. Solano, who, however states (as is the fact) that no contract for irrigation in this season is now entered into within several miles of the place referred to. The Canal officers were unable, until they had experience to guide them, to determine with any approach to accuracy the irrigating power of the canals especially with indifferent channels and a system of cultivation which was itself in process of yearly change. There were therefore grounds for complaint—unavoidable under the circumstances mentioned above.

Volume II, page 230.

77. It will be noticed that the Committee* expressly state that the power vested in Canal officers of stopping the water-supply has been rarely exercised, and that in one case only, where redress was promptly given was there any ground for complaint.

* Volume I, page 147, section 149.

Volume II, page 16, paragraph 8 of memorial.

SYSTEM OF ENQUIRY INTO COMPLAINTS.

78. As stated by Mr. Power†—

"The great desideratum is to have a large proportion of objections disposed of in the quickest time possible by officers of an average high class."

† Letter No. 849I of the 31st August 1888. Note on paragraphs 252 to 259 of Committee's Report.

The nature of the complaints made is now analysed in great detail in the Superintending Engineer's Revenue Report. Every complaint made, though it may in point of fact be identical with others previously or simultaneously preferred, is separately numbered so that the information contained at page 18 and Appendix XIV of his report for 1888-89 may be looked on for all practical purposes as complete. The whole proceedings in the case of twenty consecutive complaints from the last sub-division inspected by the Superintending Engineer have been examined. In effect they are little more than requests for alterations, and eventually the decision arrived at is mostly acquiesced in by the person making the complaint. With some 200,000 different charges to be made yearly there are certain to be mistakes, and it appears to follow almost as a necessary corollary that the officer charged with the assessment should also have the power of correcting it. In fact in the words of Mr. Inglis—

"As regards the second point, the Canal officer who makes the assessment is primarily in the same position as any other merchant or trader who submits his account for goods supplied or for work performed. It appears to me only a matter of ordinary reason that any complaint as regards a charge in the bill should be made in the first instance to the person who prepared the account. It is true that the enquiry by the Canal officer into the assessment made by himself is termed a 'judicial proceeding,' but I do not see how this affects the question. What is desirable is that mistakes in the assessments should be put right as soon as possible, and this can, in my opinion, be done sooner by the person who made the mistake than by any one else. The Canal officer is no doubt in a different position to that of a private trader when the question of enforcing payment of a disputed item in the account is considered. The law that provides that in case of debts due to Government payment can be enforced without recourse to the civil courts applies to 'water-rates' as it does to other demands, such as rent of land, cesses on land, &c. But the decision of the Canal officer is not final. There is a right of appeal to the Collector, who is certainly not a prejudiced officer, under the present system of assessment."

Volume II, page 55.

79. There have as a matter of fact been comparatively more complaints in Orissa and nearly as many in Midnapore, where the assessments are not made by Engineers and a percentage admitted is even higher. The grievance ich is most strongly insisted on "unauthorised irrigation" is proposed to deal with in another and more drastic nner, and an alteration in the agreements regarding the pply of water in the hot weather which furnish the jority of complaints regarding insufficient supply will be made, so that little except ordinary mistakes will ain to be dealt with by the assessing officers under this d. In 1888-89 upwards of 2,000 complaints were at once posed of in favour of the applicant, and it is clear that any tem which would have entailed a reference to another hority would have caused needless expense and trouble to persons concerned.

Revenue Report, 1887-88, olution, paragraph 10.

All that is wanted is that the assessing officer shall be ormed of the objections raised, and have an opportunity of recting an error, if one has been made: after that it is in interest of both Government and the cultivator that an ily accessible appeal to an independent tribunal shall be ilable.

0. It is proposed to secure this end by allowing appeals ct from the orders of sub-canal officers to the Collector or Deputy Collector specially vested with the powers of a lector in this respect. This is apparently the course recommended by Mr. E. Solano in the following extract from his letter dated the 31st December 1887:—

lume II, page 222.

II.—Sub-divisional Officer to prepare *khationis* in the usual ; notices to be given to each assami, stating the quantity of land sured against him and the amount of demand.

III.—All appeals to be presented and disposed of by the Sub-sional Officers. If the objection is rejected, he is to give the oner a copy of this order.

IV.—The appeal from the Sub-divisional Officer's decision to be ct to the Collector."

his is the system proposed to be followed in future. Solano lays much stress on the number of Sub-divisional cers being increased. As a matter of fact there are nine -divisions as recommended by him, of which the two in the tern Sone Division are not by any means the largest.

he result of the appeals so far made to the Collector , as the statement below will show, not been unfavour- to Canal officers, and in cases requiring it further lence is called for and taken, should the record not be gether satisfactory:—

ement showing the result of appeals preferred to Collectors against orders of Canal Officers of the Sone Circle.

Year.	Number of appeals.	Appeals allowed.	Appeals dismissed.	Pending.
6	148	51	75	17
7	73	9	55	9
8	41	15	20	6
9	23	3	15	5
Total ...	290	78	165	37

he Collector of Shahabad's letter No. 849I. of the 31st August 1888, it is stated 161 complaints had been disposed of by him and his predecessors between 1879-80 888-89, of which 121 were dismissed, 29 allowed wholly and 11 allowed in part.

1. Mr. Luson, who investigated the subject, recommend- classification of complaints which has practically been wed. He was of opinion that the true method of dealing the subject was to anticipate objections, or rather to e their being preferred before the demand statement finally prepared. This is what he says on the subject:

I wish here to suggest a practicable means of discovering as as possible the areas in which there has been a failure of the crop owing to deficient supply. The Superintending Engineer has given his general approval of it. It is to insist upon a report by a certain date from each *sattadar* of the specific fields in which the crops fall below a certain standard, say that the outturn will be below 2 maunds a bigha. In the case of *dhan* these reports should be brought or sent into the canal office before November 1st; and if any *sattadar* neglects to send the report in time, he should be at once called upon to explain personally. The *sattadar* is overpaid for the work he does at present, and there seems no reason why this extra duty should not be imposed.

On receipt of the reports, the Sub-divisional Officer would be able to mark down the bad crops and to make arrangements for investigating the causes before the cutting; but in many cases he has a very good idea of where the supply was deficient, so that he could direct the measurements in these places first and commence enquiries before these reports come in."

In the part of this note dealing with the alterations recommended it will be proposed that *lambardars* shall be bound to report at the end of the *kharif* season, the 1st of November, what complaints require investigation, and a separate report will be required from sectional officers on the 15th October or thereabouts as to the state of the crop in each lease. These measures, it is thought, will ensure the Sub-divisional Officer being in a position to omit from demand statements or to include in remission statements any areas on which water-rates are not properly chargeable. The onus of ascertaining what remissions should be granted will in fact, to a limited extent, be assumed by Canal officers, with or without complaints.

It is hoped that the means taken will ensure speedy redress in cases where there are just grounds for complaint.

82. The exercise of magisterial powers by certain of the Canal officers is noticed in the concluding sections of this part of the report. The Committee remark:—

"We are glad to notice the very sparing manner in which these powers are now exercised, and we have no reason to doubt that, as a general rule, they have been exercised in the past with discretion. We are aware that the withdrawl of the powers will weaken the hands of the Engineer officers at times of crisis."

They add that in the Buxar Division the powers were not then exercised, and that as it was objectionable on principle that Engineers should exercise powers in departmental cases, they recommended that the powers should be withdrawn.

In the following year practically every Magistrate and every available constable in Shahabad was engaged in guarding the canals and distributaries, despite which they were cut in several places, and the leased areas of some villages injured and in some cases destroyed by their supply of water being cut off. One special case is mentioned in which the rice on 512 acres, worth approximately Rs. 16,000, was injured in this way. In the face of these circumstances it would appear to be preferable to leave matters as they are, the control of the Magistrate of the district, to whom every case is appealable, being sufficient to ensure that the powers are exercised with discretion. This is the opinion held by Mr. Power.

Superintending Engineer's Note of date the 10th December 1888, paragraphs 11 and 12.

It is desirable that Assistant Engineers should, as in other provinces, be called on to pass an examination in elementary law, and one of my recommendations will be to this effect. The examination will have reference to their work both as assessing officers and to the class of cases they are authorised to try when vested with magisterial powers.

COMPLAINTS AGAINST THE COLLECTION DEPARTMENT.

83. The Committee remark that the complaints against the Collection Department arose to a considerable extent from demand statements, in which it was known that alterations would have to be made, having been forwarded to the Collector for realization. Pressure was brought on the Assessing

Department to forward the demand statements by fixed dates with the result mentioned above. They add :—

	Rs.
1885-86 ...	87,344
1886-87 ...	84,640
1887-88 ...	16,313
1888-89 ...	16,284

Includes remissions disposed of by refunds or cancelled demand statements.

"We are glad to say that this matter, as soon as it attracted attention, was enquired into and stopped."

The progressive diminution in the remissions yearly allowed, which are marginally noted, wiill show that a marked improvement in the accuracy of the demand statements has ensued.

84. The realization of arrears of water-rates by the distraint procedure is referred to in section 173 of the Committee's report.

Volume I, page 54.

As the water-rate is a charge inferior to rent only on the crop, this method of recovery of which the legality is unquestioned appears *primâ facie* to have much to recommend it. The real grievance consisted in the costs, which it is stated averaged Rs. 8-12-10 per case, the average demand being under Rs. 3. The costs amounted to an enormous addition to a charge, however moderate, in itself.

The practice for reasons not clearly apparent, but probably owing to the heavy costs entailed, which are referred to in the following remarks recorded by one of the Hon'ble Judges of the Calcutta High Court has of late years been abandoned :—

"A continuance of the present practice must ruin the ryots. No doubt water-rates should be promptly paid, but it is not always that a ryot has cash in hand to meet such demands, however honest he may be. To make him pay tenfold is certainly not calculated to improve his position. I heard while at Arrah that a somewhat serious attack had been made upon the person of an irrigation officer. It is not improbable that these distraints may have provoked such conduct."

Volume I, page 54.

Apart from the question of costs, there does not appear to be any good grounds for abandoning what appears to be a peculiarly legitimate charge on the crop which was matured by the aid of canal water, and the law should, I think, not be changed in this respect unless some summary powers are given by law, as recommended by the Deputy Collector, for the recovery of sums under Rs. 10 in amount.

85. The Committee make the following remarks on what is known as the joint and several liability system :—

"The complaint which has been urged before us most frequently relates to the provision in five-year leases under which all the co-signatories of the lease are made jointly and severally liable for the payment of the whole of the amount due under the lease. This provision applies to leases in what is known as form C. In D form leases, under which collections are made by a contractor, there is no such provision. The object of rendering all co-sharers jointly and severally liable was apparently to instil into the minds of all a sense of joint responsibility under which the influence of all would be brought to bear upon each individual to pay up the amount which might be due from him singly. And this object is no doubt one of importance. The principle is calculated to work well in some cases. But it is obviously liable to abuse; and so we find that in its widespread operation in the case of water-rate leases, it has been applied as an engine of injustice."

Volume I, page 54.

Instances of oppression are adduced, and it is stated that the system is opposed by the Engineers who have found from experience that it deters cultivators from entering into five-year leases.

The soundness of the Committee's conclusions as to the oppression exercised is strongly questioned both by the Collector and Deputy Collector. An extract from the observations made by the former, Mr. Power, is appended :—

"*Paragraphs* 174 to 176.—I beg emphatically to protest against the conclusions arrived at in these paragraphs. Out of Rs. 3,44,945, to which the joint and several liability clause applied, a sum of Rs. 1,460 only was recovered from persons in excess of their proportionate share. In 1887-88 none of the demand was so realized; consequently the percentage recovered in excess is very small indeed. There is no reasonable ground for the imputations that the power has been used as an engine of injustice and to save the collecting staff trouble. It is true that in a few, a very few, cases the liability has been enforced, but under what circumstances? After each assessee had paid his individual share, a balance remained unrealized. the contracting body was known to be well able to pay, and it happened that defaulters were reasonably believed to be men of whose names were included in the lease by connivance of the le signatories in order that a remission might be granted on the g of their poverty. Is it not right that when a certificate has been out against the whole body, execution should be taken first a the leaders, that is, the zemindars, thikadars and headmen take out execution simultaneously against each co-signatory, proportionate share of the unrecovered balance, however equita theory, is totally impossible in practice. There is an excellent to the Committee's remarks on Debi Mahtow's case. It was enough for Debi Mahtow, thikadar of the village, to make his pay what the Irrigation Department tehsildar failed to collec tehsildar pays occasional visits only. Anyone who finds it inc nient to meet him can easily find it convenient to visit a tion at some distance until he has moved on. A resident t dar, however, knows exactly when a ryot is in a positio pay, when heh as received his poppy advances, when he sold his linseed to the itinerant bepari, and what the heifer he at the fair fetched Once a tehsildar is out of the village he is with temporarily at least; but the thikadar is always with hin need say no more to show that a resident zemindar or thikada means of applying for payment at the right time not open to a tehsildar, and more direct power of enforcing payment than is p ble for the collecting staff of the Irrigation Department to exer The Special Deputy Collector's explanation on this subject i pressed in rather forcible language, but I think his indignation i by any means unjustifiable."

Joint and several liability.

Letter No. 849L. of 31st August 1888.

86. The Deputy Collector is even more emphatic in objections to the conclusion drawn the Committee that—

Letter, dated 25th May 1888, paragraphs 9 to 13.

"Nowhere in Bengal has the law been more inconsiderately ministered with larger and more obvious opportunities of abuse in Shahabad."

He points out that in the two years, 1885-86, 1886 during which he applied the rule, Rs. 1,460 only was recove from other than real debtors, and avers that the cens bestowed by the Committee in individual cases were seld warranted by the circumstances which were not fully kn to them. The Committee state—

"We do not condemn the system absolutely; the power the implied may conveniently be held reserve for extreme cases, to be exerci with great caution; but when the opportunities for its misuse ar abundant as they now are in the collection of water-rates, we do think that the exercise of the power can be justified, or that it be possible to impose any system of check which will prove effecti

Vol. I, page 55, section 176.

87. It appears to be doubtful whether the condemnat pronounced by the Committee on both the system and results was not too sweeping. It is, however, hardly worth wh to retain a rule, which has some influence in deterring cul vators from joining in applications for water for the sake of t small amounts recovered under its operation. These amou would be further reduced if, as certainly would have to be t case in future, bad debts were recovered *pro rata* only from the signatories of the lease.

88. At present amounts due on five-year leases o are recovered by instalments, and the Committee, whi entirely approving of the principle on which the present s tem of collection is based, viz—

"That a receipt shall be given for a fixed and known amo specified in it," think that "the effect is somewhat hard on rate-payer; and while maintaining the rules substantially in th integrity, we consider that they should be adapted to the receipt two instalments of the rate every year in equal parts instead of on

The Collector and Special Deputy Collector both express t utmost repugnance to this proposal. They point out that will necessitate increased establishment, and the latter obser that on the whole of the 238 petitions, of which abstracts ha been given in the report, he has only been able to find o man who has applied for the change. Seeing that water-ra on two-thirds of the irrigation is now paid in two instalmen it is probable that the extra work would be less formidab than is supposed, but as it is proposed to lower the rates f *rabi* irrigation, and not to encourage annual leases for ri irrigation, no further alteration appears to be require Mr. L. Mvlne observes.—

"A great deal may be said against recovering rates in two instalments, and much in favour of payment in one instalment about harvest time, when the cultivator is in funds and can command cash."

Letter dated 30th June 88.

Certificate procedure.—The Committee (paragraph 79) state that, whilst there are no actual proofs of the fact, they—

"have no doubt that the same processes have been resorted to for the recovery of arrears of water-rates in Shahabad as are invariably adopted in other parts of India, and in other departments where large collections have to be made by the collecting authorities direct from an almost infinite number of cultivators."

Letter dated 30th June 88.

They, however, admit that—

"It is possible to establish a strong case on the other side In some villages, especially Brahmin and Rajput villages, there is an everlasting struggle carried on by the cultivators to get water without paying for it."

It is proposed in paragraph 266 of the Report to take away from the Special Deputy Collector his powers under the Certificate Act. The Collector strongly objects to this suggestion, as will be seen from the extract quoted below :—

"As pointed out by the Special Deputy Collector in his note, there is nothing illegal or unauthorised in the present procedure, and I am strongly opposed to any change. From experience gained in the Road Cess Department, I am certain that not only would there be great delay in disposing of the certificates, but ultimately the assessees would suffer. Supposing the change were introduced, what would happen? The certificates would be referred to the Deputy Collector in charge, who has already upwards of 2,000 on his file more than he can deal with effectively; when, after much inevitable correspondence and delay, sanction had been accorded to an increased establishment, the notices would be written up and made over to the Nazir for service; that officer is fearfully overworked as it is—see Report of Salaries Commission, pages 251-254. So what happens? Further delay occurs in serving them; then (after the defaulter has had a month's warning that he had better conceal it) commences the search for property to attach: the peon who is sent out reports none available; he has not the smallest interest in making adequate enquiries, and the defaultor is only too ready to pay a consideration for a report of "no effects." Then ensues a complication about recovery of process fees.' Altogether, I cannot conceive any procedure more likely to increase work, retard collections, involve loss of revenue, and cause harassment to defaulters than to transfer execution of certificates to the Collectorate General Department."

Certificate procedure.

Letter No. 849I, of the 31st August 1888.

The proposal has no special connection with the other alterations proposed on the system of irrigation administration now under discussion, and it involves considerations not touched upon in the report. It is therefore reserved for separate treatment after the other changes proposed to be made have been carried out.

It may be mentioned that in Orissa and Midnapore the collections under the Certificate Act are not altogether satisfactory. The matter is obviously one in which the opinion* of the Board of Revenue is entitled to almost paramount consideration.

*Letter No. 634A. of the 25th June 1888, paragraph 11.

90. The enforcement of the payment of even just dues can never be a pleasant proceeding for the payees. It is certain that any faltering in pressing collections can only lead to the accumulations of arrears, a part of which will never be cleared off, and thus lead to loss to the public treasury. The remainder will eventually have to be recovered by the means which hesitation was felt in the first instance in employing. The Deputy Collector gives the following as the result of his experience in the matter :—

"Again, I tried the experiment of keeping separate registers of rates due from the biggest and the most intelligent zemindars of the district, and addressing them by letters to pay up, but without effect. Only in one exceptional case, viz., that of the Behea firm, it must be said to their credit, I have been successful. The biggest zemindar of the district, viz., the Maharajah of Doomraon, I regret to have to observe, has given us no inconsiderable amount of trouble. Letter after letter and reminder after reminder are sent to the *Dewan* calling for rates due, but still the money is not forthcoming, and even reply, except in rare instances, is not vouchsafed. A letter from Raj to pay up the full amount due from it. During the past three years, I was obliged, in a large number of cases, not only to file certificates and issue notices of demand against the Maharajah, but also to issue warrants of attachment. Similarly, the rates due by Baboo Baij Nath Sahai, a big zemindar and mahajan of the town, is never paid without coercive measures. It is a noteworthy fact that he always waits for a notice of demand, inasmuch as it gives him a month's time after the notice is served, and which he considers a great advantage. I can multiply such instances, but it is hardly necessary for me to do so here. Suffice it to say that when such is the conduct of the biggest and richest men of the district, what can be expected of the less favoured."

Note dated 26th May 88.

With such examples it is scarcely possible not to recognise the truth of the observations with which Mr. Power concludes his notice of this matter :—

"I would ask whether, in the face of the difficulties specified, any display of weakness, however amiable, would not result in loss of public revenue; in other words, in making less refractory people pay an undue share of general taxation? It is charged against our collection department that the aim of its policy is *Debellare superbos* (see written statement of Lalu Ram Paure, ex-Sub-Inspector of Police, Appendix IV. Part IV, section 13, page 212, Volume II). The allegation appears to me to involve an unconscious compliment. If the poor only had been rigorously kept up to their engagements, and favour shown to "the rich and the litigious," we should never have heard of a Commission being required to investigate grievances."

Letter No. 849I of the 31st August 1888.

PART IV.—RECOMMENDATION OF THE COMMITTEE.

91. I do not propose to discuss the recommendations *seriatim*. The points on which alterations in the system are considered to be desirable have been generally indicated, and they will now be specifically detailed. Several of the recommendations made by the Committee involve an alterations in the law which it may not be convenient to take up at present, and accordingly the system proposed will have reference to the existing law, the further changes possible, only after the law has been altered, being separately noticed.

The question of rates will first be considered. This is what the Committee says on the subject :—

"Although the present rates will not be considered high by those who are accustomed to irrigation in other provinces in India, we found in our enquiries that the most universal complaint against the irrigation system in South Behar was 'the excessive rate.' So general indeed and persistent were these complaints that we are satisfied that no remedies we may suggest, no improvements we may devise, will be accepted by the people as any adequate outcome of the results of this Commission, unless they are at the same time accompanied by a substantial reduction in the water-rate. In deciding this question, all the circumstances of the Sone irrigation must be considered. It must be remembered that canal irrigation is unpopular. It is alleged that Sone water is injurious to the soil, to man and beast. It must never be forgotten that an old system of irrigating from ahurs and pynes prevailed before its introduction, which the ryots declare was more beneficial to them than the present system which has superseded it. It is admitted that well irrigation is more beneficial to the crops than canal water. The country is to be water-logged; the health of the people is said to have suffered. The vigorous and often injudicious assessment of water, combined with the energetic realisation of the existing rates, has embittered both zemindars and ryots."

Necessity of some reduction.

Volume I, page 85.

Further on they say :—

"There are those who speak favourably of the canals and of the good they have rendered the country. But the preponderance of testimony, including that of the most moderate witnesses, is in favour of a reduction in the rate."

Volume I, page 83.

It would be strange if the purchasers were not in favour of reduced prices. The fact is that canal water is indispensable, and that the one matter in which there is still real interest in the proceedings of the Committee is in that of rate. In a late publication, to which reference is made in paragraphs 134 to 140, Baboo Kandhji Sahay, B.A., B.L., Secretary to the Co-operating Committee, observes :—

"Such is the summary of the recommendations of the Commission. I shall begin with the last, for the lowering of rates, first, as being the most important, and without which, in the words of the Commission, no improvement will be accepted as an adequate outcome of the

92. Practically, the discussion of rates may be confined to that for rice, which is comparatively of overwhelming importance, and the rate for five-year leases, which the Committee propose to reduce from Re. 1-4 to Re. 1 per local *bigah*, is that which must rule the other rates.

93. It must not be forgotten that the validity of every one of the reasons given by the Committee as a reason for reducing the rate is strongly contested.

It is stated that canal irrigation is unpopular. In the last two years practically the whole of the water available in the *kharif* season has been disposed of. It is suggested that this demand, which cannot be questioned, is partially at least due to the *aharas* having been rendered useless. The fact is that in the jungle portion of the Jugdispore estate, where there were no *aharas*, not only has the transformation from *rabi* to *kharif* cultivation in the land irrigated by canal water been complete, but the inhabitants of Belgaon, who could get water from one of the half dozen efficient *aharas* in the district for nothing, positively prefer to pay Rs. 6,000 a year for the regularity and convenience of canal irrigation.

One apparently strong instance illustrating the assertion made that *aharas* have been destroyed by the canals is repeatedly referred to as a convincing proof of the fact, though it is in the same page* of the report admitted that the Engineers took immediate steps to remedy their own mistake.

* Volume I, page 24, section 64.

94. It is stated that the Sone water is injurious to the soil, to man and beast. The crop experiments made by canal officers are derided. Experiments made by an independent civil officer and by an eminent firm of European zemindars show that exceptional crops averaging 30 maunds of paddy per acre are grown on almost every variety of soil, including *kewal*, which is repeatedly asserted in the report to be injured by canal water. The average of the Canal officers' experiments to date is two maunds per acre less than the estimated yield of average crops in a year in which there was no rain in the *hatiya*: so that the crops depended on canal water only, and more than ordinary loss might have been anticipated.

Volume I, page 24 section 64.

95. The injury to *aharas* is strenously denied by the Superintending Engineer, who even considers that their effective supply has been increased by the extra quantity of drainage water they must necessarily receive from the canal water poured over the country. It is not denied that well irrigation is superior in the case of opium, and the crop experiments show barley, but the chief crop, rice, is not irrigated by wells, and wheat appears to thrive equally with well or canal water.

Volume I page 121.

96. These in general terms are the replies of the Canal authorities. A special civil officer was deputed to investigate the subject with special reference to the rise or fall in the rent of lands irrigated by the canal. This is what he says on the subject:—

"I have recorded in my note-book statements gathered on the spot as to the increase of rents throughout the villages irrigated. I will give a few examples only. In experiment No. 2, the village Danwar has been held by————in *thika* from the Dumraon Raj for 30 years; the ryots are nearly all Rajpoots and claim that their holdings are *guzaskta* (*i.e.*, with a right of occupancy at a low rent); they say that————is demanding an increase of 5 annas a bigha rent, simply because the lands have been increased in value by the regular crops they now get from canal water in place of previous precarious outturn. In experiment No. 24, 15 annas of the village is held by Baboo————, an Arrah pleader, who filed a long written statement before the Committee asking for a reduction of rates. From the shareholder of 1 anna, the putwari and the ryots, I found that the *jamabandi* of this village has risen since the opening of the canals from Rs. 1,800 to Rs. 3,200. I was told that no ryot is considered to have any right of occupancy except those specially declared *guzashtadars* by the courts; no *pattas* are given, and rents are regularly increased. This village lies between the Koilwar branch and the Arrah main lines close to their junction. Experiment No. 25 bears more directly upon the question of the rate. The whole area under cultivation is only 22 bighas, most of the village having been acquired for canal works; the area being below 50 acres is too small for a five-year lease, yet a mahajan, who foreclosed a mortgage upon the cultivated lands, is content to irrigate *dhan* year after y paying Re. 1-14 a bigha. Similar instances to these will be fou throughout my note-book.

Mr. Odling in his minute of dissent from the Committee's rep in paragraph 19 stated:—'It was not to be expected that eit zemindars or cultivators would care to bring before the Commiss cases in which the value of their property had been increased. T road cess revalution will afford some means of estimating the eff of the canals on the value of the landed property in the distri affected.' I have accordingly endeavoured to analyse the figu filed before the Collectors under Act IX of 1880 and its predeces and to compare them with the areas upon which canal water been regularly taken.

"The periods when the road cess returns were filed are extrem convenient for comparison at the present time. The last retu were filed last year, and the former returns in 1876 A. D., when ca irrigation was just commencing.

"To make the comparison, I first obtained from the Engineer list of all the villages in which the areas now under five-year le exceed 400 bighas, and then identified them with the Collect maps. This was a work of some little difficulty, as in some ca I found that in order to secure a 'block' pieces of another vill had been included. I then consulted the original papers, filed the landlords or their representatives, referring to these villa As from my previous connection with the districts, I was person acquainted with the officers in the Road Cess Departments in S habad and Gya, I found little difficulty beyond clerical labo Summary valuation by the Collector I have taken no notice of, all returns which on comparison were obviously wrong, I h rejected. Little exception can therefore be taken to the figu given

* * * *

"We then get this result:—Taking canal water upon one-third the area of a large number of villages enables the zemindar increase the rents per bigha in these villages at least 10 per ce more than he could otherwise; in other words, regular canal i gation enables the landlord to obtain 30 per cent. more from the l than he would obtain without the canals.

These results seem to me to have a very important bearing u the question of the reduction or increase of the rates for water. the extra increase of rent is the true test in South Behar of advantage derived from canal irrigation. As the Rent Law Co missioners on page 73 of volume I (1880 A. D.) wrote:—'Enhan ment on the ground of increase in the value or price of the prod is a stern reality to the ryots of Behar. While in Bengal ryots are the stronger and the landlords the weaker party;' in Be it is just the reverse, the ryots being (save in some exceptio places) in a depressed condition, and incapable of maintaining agai their landlords the rights given them by law.. The Bengal Tena Act, 1885, is tending to improve this state of things, and the use the prescribed form of receipt is being adopted, though it is far fr general. But the figures comparing the irrigated and unirriga villages above mentioned relate to times before the Bengal Tena Act became law, and I have no hesitation in stating in regard to ————estate in particular, and to almost all the estates in Sone Circle, except the Dumraon Raj, where there are Raj *guzashtadars*, that any improvement in the amount or value of produce eventually finds its way into the pockets of the landhol in both *bhaoli* and *nagdi* tenures. Reduce the five-year lease four annas (*i. e.*, 20 per cent.), and the landlord, consciously unconsciously, will eventually get his rent-roll increased by 20 cent. on the land irrigated.

"I may here mention that in my opinion the improvement sh above is in no way due to the superior fertilising power of c water. I know of no material difference between the Sone w and the rain water stored behind bunds. Putting aside the incr of area under cultivation, improvement is due, it seems to me two things—(1) the substitution of the easily grown and more v able *dhan* for *rabi* and inferior crops; (2) the considerable raisin the *average* annual outturn by a full crop being always secu instead of outturns varying with unsatisfactory rainfalls.

"All the figures given in this paragraph practically relate to *d* only. In the figures for the three districts only five-year leases considered; in mehal————, *dhan* on annual lease is included, as the percentage of *dhan* in five-year leases is more than 83 per c (*cf.* Superintending Engineer's annual revenue report for 1887 paragraph 4, where he also writes that 'five-year leases are p tically long leases for the irrigation of kharif crops only'), co quently we are right in considrring *dhan* as the crop which caused the great increase in rents.

nuares, 30·69 per cent. of the pre
increased cultivated area would
been if it had only increased at the same rate as in the unirrigated villages.

'All the figures given above I can personally vouch for; the calations have been tested in the offices of the Superintending Eaeer of the Sone Circle and the Bengal Secretariat"

As regards the *aharas* he observes—

'If the majority of the Commissioners had seen the rice crop this r, which was not irrigated from the canals, I feel sure that they ld not have written in paragraph 276 of their report as one of the f reasons for the reduction of the rates that 'It must never be gotten that an old system of irrigation from *aharas* and paynes vailed before the introduction of the canals, which the ryots lare was more beneficial to them than the present system which superseded it.'

It is only by seeing the crop on the ground in a season like the , when the *Hathia* and *Chitra* rains entirely failed, that a clear parison can be made of the two systems."

Mr. Power, the Collector of Shahabad, is of opinion that case for reduction in the kharif rate has been made out. observes :—

"*Paragraphs 275 to* 290.—Admitting the force of the arguments summarised in paragraph 276, and adding that the history of the canals with their ensive head works designed for a very much larger scheme would admit of anything like a commercial rate, I am still of opinion that rate of Rs. 1-4 per bigah for leased areas is not too high, and that case has been made out for reducing it. The bulk of legitimate nplaints refer to 'unauthorised irrigation' charged for at Re. 1-14 a ah, or, if penalty rates are imposed, Rs. 3-12. There is no general complaint that the five-year lease rate of Re 1-4 a bigah is too high; the evidence cited in paragraph 277 does not prove anyng relevant to this issue. Owing to a number of causes irrigation the Dumraon estates has resulted in friction; it is unpopular, but in the Revenue and Public Works cess, so is the Income-tax, and is every institution to takes cash out of pocket without an immete return, no matter what benefit, past or potential, may attach to Mr. Selano's villages referred to were practically beyond the ch of canal water, and for a couple of years they suffered because regular supply was available: this is no reason for reducing the e in villages where water can be supplied, though it might be one differential rates. The Behcea firm does not press for a reduca of rates; it is obvious why tenants of their village mentioned uld request them to spend a large sum on repairing an ahar which l serve for irrigation in ordinary years, save Rs. 6,000 a year, and ve that sum available for payment of rent. It may be assumed as tain that if in a year of scarcity the villagers wanted canal water, water (though intended for others) was in the canal, they would it somehow: see also my remarks against paragraphs 41 and 42. all other rates proposed I concur with the Committee."

* Rates.

letter No. 849I, dated 31st August 1889.

98. The following remarks are taken from a note by the n'ble Mr. Nolan :—

"The whole report of the Committee seem to be directed towards ving that an exception should be made to this primary rule of financial justice in favour of Shahabad. As a former Collector of the district, having many associations with its people, my peral sympathies are by no means opposed to such a course; but I st own that it appears to me unjust and the reasons urged in its port unsound. These reasons, as summarised in paragraph 276 of report, headed "Necessity of some reduction," and opening with passage quoted above, are (1) the desire of the Commissioners that changes to be introduced should be accepted by the people as an quate outcome of the Commission; (2) that canal irrigation is opular; (3) that it is alleged to be unprofitable; (4) that it is said e injurious to health. On the first of these considerations comit has been made above, and I will proceed to deal with the other gations, in so far as they can be considered to be grounds for ng the water at less than its value.

ote, dated 10th July ,

"With regard to the unpopularity of irrigation, if the expression o be taken as synonymous with a failure in the effective demand water, it is obvious that, under a system of free sale, this consiation must be decisive If ryots do not consider that it pays them to Re. 1-4 an acre for canal water, and to suffer such inconvenience lealings with the Department entail, they will not send in written lications for leases, and the rates must be lowered. In that case uction is a commercial necessity as well as an act of justice. And o I may remark that if, as sanguinely suggested in paragraph 292 of report, a reduction in the rates is considered to be desirable in the mate interest of the revenue, as facilitating retrenchment and the ension of irrigation, there is no objection to the proposal, or rather hould be supported from a financial point of view. That is a hnical question, as to which I can only remark that, considering favourable character of recent seasons in respect to rain, there ms to be no falling off in the demand for water at existing rates, no supply of water available for the extension of operations at most important season of the year. But the unpopularity referred to by the Committee is of a different kind. It is consistent with brisk demand for water at current rates and under the existing system. It finds its expression in attacks upon the canal administration, made by those who would, nevertheless, resent the cutting of of their water as the greatest possible calamity. These attacks may be most just, or they may be altogether unfair, but as affecting rates I submit that they are irrelevant. If individuals are to blame, they may be punished; if the system is in fault, it can be altered when found defective: but the principle that fair rates should be levied in the interest of the tax-payer must, nevertheless, be maintained. These rates were not fixed with a view to attracting local popularity, and cannot properly be altered with that object. If they were reduced on this ground, we would soon hear of the unpopularity of irrigation rates elsewhere.

"With regard to the assertion that irrigation at the present rate is unprofitable to the cultivator, I fail to reconcile it with the fact that he applies for the water. He cannot do so for his pleasure only and the inference is that he does so for his profit. That he depreciates the article he buys is no matter of surprise: most purchasers act in this manner where by so doing they can hope to influence prices. I presume the members of the Committee did not expect to hear the purchasers of water state how it had converted barren sand into valuable estates with large profits to the owners, or to infer that the rates they paid should, therefore, be enhanced.

"I may say that when I was Collector of Shahabad—an office which I held during the five years ending with 1884-85—no one appeared to doubt that irrigation had, on the whole, been profitable to the district. The system was then extending; indeed, the area under irrigation doubled during the period. And coincident with its extension was observable a degree of at least comparative prosperity clearly distinguishing the inhabitants of north Shahabad from the poverty stricken population of the surrounding districts. Complaints of proper assessment and of the occasional failure of the water-supply were indeed rife, but the advantages of the system as a whole were at the same time acknowledged."

99. It appears that in the light of the facts brought forward by Mr. Luson's enquiry, the information given by the Civil officers consulted, and the fact that the demand for water in the rice season is quite equal to, if not in advance of, the supply, not only is no reduction called for, but the rate might without injustice to the cultivator be raised.

Mr. L. Mylne states that—

Volume II, page 199.

"Any raising of the present rates would very probably tend to a combination against canal water."

And taking all the circumstances connected with the appointment of the Committee and the alteration in system now proposed into account, it will probably be better, for the present at least, in the interests of both Government and the cultivator, to retain the present rate, regarding which Mr. Mylne makes the following observation :—

"I am of opinion Re. 1-4 per bigah for all crops under a five-year lease during all but the hot months a fairly moderate charge."

100. This favourable rate should, however, apply in the case of good registered channels only and in situations where suitable blocks involving little or no waste of water can be obtained. It is proposed, with the view of inspiring confidence and avoiding interference with the cultivators more frequently than is absolutely necessary, that the lease under such circumstances shall be for seven instead of for five years. Where the blocks are less suitable, and the channels, though not necessarily involving waste, are less substantial, it is proposed to reduce the term of lease to three years and to raise the rate to Re. 1-9 per *bigah*. A distinct advantage would thus be given to the proprietors of estates whose arrangements in the matter of canal irrigation were such as not to cause loss to Government. In annual leases the rate would be Re. 1-14 per *bigah* as at present, but even in their case a suitable block would be insisted on. In no case would irrigation beyond the limits of the block be assessed. The precautions to be taken to prevent the misuse of canal water will be detailed subsequently.

101. For *rabi* irrigation the general rate would be five annas lower than at present, viz., Re. 1-4 per *bigah* for flow irrigation and 15 annas for lift. In the case of land on selected distributaries not open for *kharif* irrigation the

rate would be 15 annas and 10 annas per *bigahs* for flow and lift irrigation respectively. Water would not, in the case of leases at the lower rate, be given before the 25th October, unless the season was one of seasonable rainfall, when the Divisional Engineer would be authorised to open these distributaries by the 7th October, and no water would be given to *rabi* crops after the 25th of March. It is never, as a matter of fact, wanted after that date except for sugarcane and hot-weather crops.

102. *Bhadoi* crops would, as at present, be charged Re. 1-9 per *bigah*, but it is intended to include *seerha* in this rate if further investigation shows that this class of rice can be separated from *kartika* and *aghani* without the risk of frequent disputes.

103. The rate for hot-weather irrigation between the 25th of March and the 25th June would be, as at present, Rs. 2-8 per *bigah*, but water would be allowed to be taken earlier for indigo and other crops requiring it, not before the 25th February, provided an equivalent number of days was cut off in May and June.

104. Sugarcane it is proposed to treat in a special manner. At present half the complaints refer to this crop, which is peculiarly liable to damage from other causes than want of water. In 1887 the crop was generally destroyed by rain. Permits would be given for sugarcane irrigation at Rs. 5 per *bigah*, flow or lift, payable about the time the crop was reaped, with the undertaking that, in the event of the crop failing through any cause, a proportionate remission would be made. This rate would include irrigation in the hot weather for which no extra charge would be made. Otherwise canal water taken during the different seasons—*rabi*, hot weather, and *kharif*—would be charged at the rate fixed for the season, without reference to the failure or otherwise of the crop, except so far the rates for the current season were concerned, which would be remitted in the event of failure of supply only.

105. The charges would in all cases be in *bigahs* and decimals of *bigahs*, any smaller area than one-tenth of a *bigah* being charged as a tenth. The Committee's proposal is similar, except that one-eighth has been replaced by one-tenth. The Government will reap a small advantage by *cottahs* being replaced by decimals of a *bigah*; but it is proposed to expend Rs. 75,000 of public money on bridges, over village channels crossing public roads, which will quite neutralise any financial advantages the alteration might give to the canals.

Volume I, page 88, section 289.

106. There will be some minor changes. When the five-year lease rate was fixed, it was partly with a view of avoiding interference with the cultivators and partly with the object of inducing applications to permit sugarcane included in the block to be watered without extra charge. No alteration in this respect is proposed. It was, however, never intended that water should be given to these blocks after the time when it is ordinarily required for *rabi* crops without extra charge, and the season will, therefore, end on the 25th March, after which water is required for sugarcane and hot-weather crops only.

Mr. Mylne says:—

"I am against hot-weather irrigation, believing that during May and June the land should have respite from canal irrigation;"

Volume II, page 202.

whilst in the paragraph immediately above he observes:—

"I am decidedly of opinion—and in this I agree with Mr. Solano—that, if for nothing else than cane irrigation, the canal should supply water till, at any rate, the end of April in each year."

In the case of cane irrigation the transaction is, at any rate, purely commercial. If the cultivator does not find it to his advantage to pay the extra rate for canal water, he can sink wells, and it is desirable that he should be driven to consider it in this light as early as possible, and not trust to keeping the cane alive until the 31st March by canal water and afterwards in April, May, and June by rain, which is pure lottery or surreptitious irrigation. This is what fi year lessees frequently do at present.

108. Adopting the proposals made in the preceding paragraphs, the water-rates for the future will stand as follows:—

Leases for a term of years.

For water supplied between the 25th of June of one year and the 25th of March of the next.	Flow or lift. Rate per bigha.	Flow or li Rate per ac
	Rs. A. P.	Rs. A.
For leases for seven years—all crops	1 4 0	2 0
For leases for three years—all crops	1 9 0	2 8

Season leases.

Name of Crop.	Date of supply.	Flow or lift. Rate per bigha.	Flow or Rate per
		Rs. A. P.	Rs. A
Rice and sugarcane for kharif season only	25th June to 25th Oct.	1 14 0	3
Bhadoi, sorha rice, or any other crops	Ditto to 15th Oct.	1 9 0	2

In the case of annual leases no extra charge will be m for a crop of *kesari*, linseed, or *gram* sown in rice-f watered with canal water, for these a supply will be all to be taken until the 15th November.

In the case of both annual leases and leases for a of years, water will be supplied for rice seed beds only an earlier date in June, if the supply in the river adm this being done.

The following will be the rates for *rabi* crops, inclu sugarcane leased for by the season, for water between 25th October and 25th March:—

Season leases.

Time of Supply.	Locality.	Flow. Per bigha.	Flow. Per acre.	Lift. Per bigha.	Lift. Pe
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs
15th October to 25th March.	Water supplied from distributaries open for *kharif* irrigation.	1 4 0	2 8 0	0 15 0	
25th October to 25th March.	Water supplied from distributaries or parts of distributaries from which *rabi* irrigation only is allowed.	0 15 0	1 8 0	0 10 0	

N.B.—In both cases Executive Engineers may, in years when the demand f for *kharif* crops admits of it, supply water for *rabi* on any date after t October.

The rate for sugarcane treated as an annual crop s as follows:—

Annual leases.

Time of supply.	Flow or lift. Per bigha.	Flow or lift. Per
	Rs. A. P.	Rs.
First of January one year until the crop is cut, which may be March in the following year ...	5 0 0	8

in the case of leases at this rate proportionate remission be allowed if the crop suffers from causes independent he water-supply, such as excessive rainfall or blight. tivators will thus have the option of taking water arately by seasons, in which case they will take all s except failure of supply, or taking water by the year, which case proportionate remission will be allowed if crop suffers from any cause; water-rates at the proper being charged in lieu in the event of another crop ng substituted. The total charge for separate water- s by seasons will be Rs. 1-14 + Rs. 1-4 + Rs. 2-8 (*vide* ow), or Rs. 5-10 for the crop.

The hot-weather rate will be as follows:—

Season leases.

	Flow or lift.	
	Per bigha.	Per acre.
	Rs. A. P.	Rs. A. P.
water supplied between the 25th March and the 25th June, or at the option of the applicant, between the 15th of February and the 25th of May, for all crops.	2 8 0	4 0 0

e rates mentioned to take effect from the 1st of April 90, except in the case of seven and three year leases, which l commence from the 25th of June 1891; five-year leases der existing conditions to continue to be entered into another year. The Superintending Engineer will have power to admit existing five-year leases fulfilling the essary conditions as part of a new seven-year lease, should circumstances of the case appear to require it. It is irable that the rates should be fixed for a term of years, an undertaking might be given that no increase will be de in the above rates before the 25th June 1896, which visо would fix the rate for long leases for the next seven welve years.

09. The water-rates will be due and payable on the es mentioned below:—

Seven-year leases	One moiety	... 15th December.
Three-year leases	One moiety	... 1st March.

Season or annual leases.

Bhadoi and crops classed as *bhadoi*, including sugarcane waterings from the 25th June to the 25th October...		... 1st November.
Rice		... 15th December.
Rabi and crops classed as *rabi*, including sugarcane waterings from the 25th October to the 25th March		... 1st April.
Hot-weather rate ...		... 1st July.
Sugarcane, full annual rate.	One moiety	... 15th December.
	One moiety	... 15th February.

The Divisional Canal Officer will endeavour to forward as ny of the demand statements as possible to the Collector een days before the dates fixed for payment, but accuracy the individual charges should be regarded as of more portance than a rigid adherence to dates.

10. Leases issued during the *kharif* season will be ject to the following general conditions:—

I. Preliminary applications for seven or three-year leases must be made by the 1st of April at the latest. The word preliminary is used, as the regular application cannot be prepared until the measurement is complete, so that the correct area may be entered opposite each cultivator's signature appended in the presence of a witness. Water will not be supplied until the application has been signed by all the occupiers of the land to be irrigated and a permit issued. If there is delay in obtaining the signatures and water is immediately required, it may be given on annual lease permits issued under the conditions noted below, which will be cancelled, provided the application for a seven or three-year lease is completed by the 30th of November, or with the special sanction of the Superintending Engineer the 1st March following.

II. Annual leases will be on the same conditions as regards the block being strictly defined, but the measurement will not necessarily be made before water is given, an area more or less being entered in the application in which the boundaries of the land to be irrigated will be specified. The application will state that the actual area measured within the boundaries specified will be charged.

III. The permit will consist in effect of a copy of the application with the permit endorsed on the back. In the permit the size and position of the outlet, head of water to be maintained, and approximate discharge will be mentioned. No alteration in the outlet will be allowed during the currency of the lease without the express consent of the lessees.

IV. The permit will state that water is to be supplied for the sole purpose of irrigating the lands mentioned therein. This, of course, includes the right to *nigar* or drain the lands at the proper season of the year. It will be expressly agreed in the application that water-rates will be chargeable whether or no rain falls, and water is required and supplied.

V. It will be noted in the application that no claim for remission will be entertained unless an application is filed 20 days before the crop is cut, on a form which will specifically state the names of the cultivators and the areas for which remission is claimed. A suitable form will be supplied at the cost of half an anna, but its use will not be compulsory, provided the required particulars are given.

VI. Leases, whether annual or for a term of years, will be granted for well-defined blocks only, and in the case of the latter the lease will be refused, unless the block includes all the land which would ordinarily or probably be irrigated. The block must therefore have well defined boundaries. The principle would be applied in the case of annual leases, but somewhat less strictly, as the lease need not be accepted in the following year if it is found that water is allowed to be wasted or to be used for irrigating unleased lands. On the other hand, land too high to be irrigated by flow will, at the discretion of the Canal Officer, be excluded from the lease, which will be for water at the level it can be delivered under existing circumstances, without its level being raised by cross bunds or other temporary appliances.

Mr. Mylne, volume II, page 191.

VII. Under no circumstances will unauthorized irrigation from water supplied to land under a *kharif* lease be *measured* or assessed. If water is found to be flowing beyond the boundaries of the lease, the outlet will be temporarily closed. In the case of leases for three or seven years, power will be reserved to the Superintending Engineer to cancel the lease with the concurrence of the Collector, if water is habitually wasted or used

for purposes of unauthorized irrigation, and also on the applications of all the signatories for good cause. Such leases will likewise be liable to be cancelled on the application of the Collector if, on the 1st of June of any year, water-rates are in arrear by more than half a year's demand. These conditions will be recited on the application form.

VIII. The only condition under which unauthorized irrigation in this season will be assessed, will be when a village channel has been cut and the perpetrators of the offence cannot be traced, in fact where a criminal offence has been committed. In such cases the papers will be submitted to the Collector before any measurement is made, and assessment only made on his order after such enquiry as he may consider to be necessary.

IX. The Divisional officer may, at the request of the Collector and with the sanction of the Superintending Engineer, refuse permits to the cultivators of villages where there have been constant difficulties in realising water-rates unless half the amount specified in the permit is paid in advance.

111. These conditions apparently fully meet those stated by Mr. Mylne to be necessary in the sentences quoted below :—

"No question of liability for rates would arise in the case of long leases. But because for various reasons considerable areas of the district are unlikely to come under long leases, safeguards must be provided to secure *equitable assessments* in respect of such areas, whenever canal water may be supplied. It is difficult to suggest any other plan than the following :—

"1. Sufficient water to be arranged for on written application for irrigation of the whole or major portion of well-defined blocks beyond which no charge for illicit irrigation should be made.

"2. Such application to render cultivators liable for rates on the crop, except on undoubted failure of supply, ascertained promptly by the aid of established gauges and from the appearance of crops. Liability to rates would remain whether or not rain fell during the irrigation of the block with canal water."

Volume II, page 191.

Unfortunately under the system mentioned, two evils will arise. Unanimity is required and a small minority may object, and in the words of Mr. Mylne—

"It has always been found that such minorities refuse to join any contract on application, believing they can enjoy the benefits of canal water without paying for them."

Volume II, page 19.

The other is that in most cases no punishment or penalty can be inflicted in the case of unauthorized irrigation, it being usually impossible to detect the actual offenders and to secure a conviction in a criminal court. A higher charge for the water, which is in many respects the most appropriate penalty, is deliberately abandoned, as on the whole this remedy leads to greater evils than the disease which it is intended to cure.

112. It might and frequently will happen that after the 1st of September there is a pressing demand for water, when, as frequently happens, the *hatiya* rains fail. The quantity of water available to meet this demand is at present and is likely to continue to be very limited. Crops supplied with water at this late period of the season, though greatly benefited, produce indifferent crops. There are always difficulties both as regards assessments and collections. Villages irrigated in October 1888, at the urgent request of the Collector, have failed to make any payment whatever, and in many, cases though canal water was used, no assessment was practicable. The whole available staff is required to distribute water to the leased areas, and they cannot be employed in examining blocks proposed to be leased. The only possible solution of the difficulty appears to be in such cases to sell the discharge of an outlet for a limited time after the leased areas have been supplied. In such a charge of four rupees for one cubic foot per seco twelve hours will be made, half being payable befor outlet is opened, and the other half secured by a without reference to the area to be watered. The proposed is rather less than one rupee per *bigha*, but will be considerable wastage.

113. The charges to be made for water supplied be the end of the *kharif* season, say, the 25th October an 25th March, require litt e comment.

A considerable reduction has been proposed to be in the rates for *rabi* crops. It is necessary to imp higher charge, where water required for *kharif* crops o utilized, as water is certain to be taken, and it will int with the supply required for the rice crop at the critical season. But the reduction in rate propos be made varies from 20 to 40 per cent. In the of sugarcane the rate proposed is somewhat less th present charged, and its realization will be depe on the crop coming to maturity. If the cultivator cl to take water for part of the year only, he will be ch the rate appropriate to the season, and no claim for r sion on grounds other than failure of supply lis to. *Serha* rice, which is harvested in September, has included under the head *bhadoi*, and the rate for irri it consequently slightly reduced, whilst the time which water can be given for the hot weather rate has made variable to suit indigo and other crops requiring in March.

114. The strict provisions proposed to be made rega unauthorized irrigation in the *kharif* season, 25th June 25th October, will not apply to irrigation at other tin the year, when the canal officers will exercise their p powers, regarding which there have been no real compl This is in accordance with the Committee's recommen quoted below :—

"But there is always ample water in the canals and distrib during the *rabi* season. The canal runs to waste into the Ganges: the never any complaints of insufficiency of supply at this time. N there any complaints of assessment of unauthorized irriga regard to *rabi* crops. The object of the fixed duty systen put an end to these complaints, but where there are no com there is no advantage to be gained by its introduction. Th and simplest arrangement for the *rabi* season will be, we to follow the practice which now prevails, and allow the hol the land under lease to take just as much water as they plea their *rabi* crops. If they abuse their privilege, and the w allowed to flow on the lands of others, those lands will b liable to assessment. But the experience of the past affor strongest reason for assuming that the privilege is not likely abused."

Volume 1, page 67.

115. In the existing rules it is provided that in the of land held on a *bhaoli* tenure the water-rate shall coverable from the cultivators and zemindar in the proportion as the produce is divisible among them.

It has been held as a matter of law that the zemind only be made responsible where the application has signed by him. There are great difficulties in obtainin signatures of zemindars, who frequently reside out district, and there are often numerous shareholders. La in many cases the ryots have made themselves responsib all the water-rates rather tha get water or wait an indefinite until the zemindars are willing to sign. An alterati the law on the lines recommended in paragraph 223 Committee's report is desirable, but in the meantime legal rule for the practical guidance of canal offic required.

Volume 1, page 70.

The matter is very fully dealt with in Mr. Luson's from which the following extract is quoted :—

"The position of affairs will be more clearly illustrated subsequent history of the case which led to the statement of now in question. It referred to one of the Doomraon village after it occurred the representatives of the Maharajah refi

with the ryots any leases last *kharif* season on *bhaoli* lands, notstanding that, hitherto they had paid half the rates, and notstanding that as far as I could ascertain, every other landlord ept one) in the circle consented to share the rate. The consece was that in a number of the Doomraon villages water for rice not taken by the ryots, and with the failure of the *Hathiya* rains rops died. It was the *rabi* sowing time when I commenced my iries: the sowing rains held off; still the representatives of the vere refusing to agree to half the charge of the water the ryots asking for, till the Collector of the district, at my request, l the case of the ryots upon the Dewan, and induced him to a tardy notice that the Raj would this season share half the f irrigation, so far as *rabi* only was concerned. In 15 *bhaoli* es belonging to the Doomraon Raj, *kharif* was irrigated by canal taken by the ryots last season on their own responsibility. In cy could, no doubt, afford to pay the extra tax of 15 annas, as were informed that by law the malik could not be charged; but eral I heard that they meant to deduct the value from the rent *danabandi* time—a state of affairs likely to lead to unseemly tes."

ere can be no question that the only settlement of the ion at present practicable involves possible injustice to enant, but it is better that he should be able to procure at even an enhanced price than allow his crop to fail. is proposed that in future the cultivator shall invariably himself responsible for the whole of the water-rates, that the canal officer shall be authorised to issue a it and supply water on his written application.

ovision will be made in the rules that on the written st of the zemindar any specified proportion of the -rate will be recovered from him, but it will rest with yot and not the canal officer to procure this authority the zemindár, or to take action under section 40 of the al Tenancy Act if he is so advised.

SUPPLY AND REGULATION OF WATER.

3. This point must be viewed from three different -points. In the *rabi* season there is always an ample y, and the tendency of cultivators has been towards irrigation. In the hot weather, April, May and June, arantee in regard to the supply of water can be given. e rains or *kharif* season the demand for water at n times is in excess of the supply, and it is necessary to ise great care both in granting permits and in regard e situation and suitability of the blocks to be irrigated. e bulk of the irrigation is in the *kharif* season, and only in regard to the supply at that time that are required. The principles to be followed are thus l by the Committee—

tion of irrigable to be let on lease.

is essential to the proposals we are making that the canal officer should be allowed to select his own area for irrigation. This area should be let on lease under conditions we shall tly explain. The canal officer would not grant a lease for a area than the outlet or outlets from the distributary could in each case, and he would refuse a lease if the area applied re insufficient to take the full supply of water which would be furnished by the outlet. He would be guided in his judgment by the fixed duty acres per cubic foot of water. It is of course not intended lease should be arbitrarily reduced or enlarged so as to bring in the exact area commanded by the outlet. A small margin side or the other would exist in all cases. It will be better to the side of liberality than of strictness. But the canal autho- must be allowed the power of refusing a lease at discretion."

mo I, page 65.

ring the last two years irrigation has been conducted e main in the manner suggested. The outlets have adjusted to discharge approximately the quantity of required (arrangements having been made to procure under six inches in diameter) and leases for blocks, in- g a strong probability of unauthorised irrigation, or ring a discharge which could not be efficiently arranged ave been declined.

7. Since the Committee's report was written valuable ience has been gained.

1888 there was practically no rain from the 7th mber to the 29th November, and the rice crop depended on canal water only. Practical results, the fruits of this experience, will be followed in preference to any particular scale of duty, and in all cases special care will be taken that the lessees shall know exactly what outlets will be allowed, the essential particulars regarding which will be entered on the permit. The rules will provide that general instructions issued from time to time on this subject must be followed. The ordinary base will, taking the rice area included in the block only into account, be for a duty of 50 acres per cubic foot per second on the discharge from the outlet with a *tatil* of five days in 15; but this duty will be liable in places to be reduced to 40 acres per cubic foot per second, or increased to 65 acres per cubic foot per second, where it has been found by experience that this latter duty can be obtained. Where the supply required is in excess of the lowest duty mentioned, the lease will ordinarily be declined. It would be an obvious loss of power to use the canals as a means of growing rice in soil which is practically in the condition of a filter bed. Such soil is suitable for *rabi* crops only.

The division of leases into seven-year at a lower rate and three-year at a higher will also afford a means of differentiating leases in unfavourable situations. Seven-year leases will only be accepted where it is positively known from former experience that a sufficient supply of water is always available, and that the quantity required is not excessive.

118. The department will accept and ordinarily exercise full control over and responsibility for the supply of water through the outlets. It will, however, be provided in the rules that, with the consent of the lessees, the custody and control of any outlet may, by an order in writing by the divisional canal officer, be made over to the *lambardar*, provided the latter is willing to undertake the charge. The delegation will not impose on the latter any responsibility with regard to unauthorized irrigation to which he is not otherwise subject. The *lambardar* will take charge as a matter of convenience to both the lessees and the canal department, and if the latter are not satisfied with his conduct they will resume charge of the outlet themselves. It will always be part of his duty to close the outlet in accordance with orders received from proper authority.

VILLAGE CHANNELS.

119. The Committee recommend—

Volume I, page 93, recommendation XII.

"That the construction of water channels be undertaken by the Canal Department, and that a suitable charge of from two to four annas a bigha be added to the water-rate as channel rent."

With this recommendation Mr. Odling found himself unable to agree. Very many of the leases are at present supplied with efficient village channels—not less than 185 miles have been made by canal officers at the cost of zemindars, and in the construction of much more than that length they have given advice and assistance. It is difficult to say what upwards of 1,000 miles of village channels would cost to construct, more especially as land would have to be acquired for maintenance purposes, and its price in the immediate neighbourhood of the canals has through their agency been largely raised. It has been ascertained that the road crossings alone will cost Rs. 75,000, and altogether it is not likely that less than three lakhs of rupees would suffice. The maintenance charges would be Rs. 20,000 a year, whilst in private ownership it is doubtful whether one quarter of that sum is expended, the cultivators being willing to carry out the repairs to a large extent without payment. The real difficulties are the road crossings and the length of some of the village channels which are *de facto* minor distributaries. It is proposed (I) to construct all road crossings required at the cost of Government; (II) to allow no village channel exceeding one mile in length to be constructed in future, and (III) except in the Jugdispore Estate, to take over and

Volume I, page 97.

maintain at the public cost any village channel already constructed which is in reality a distributary, provided it is made over to Government without charge.

120. There is no objection to its being laid down by rule that channel rent shall not be less than two or more than four annas a bigha, and, in the case of seven or three-year leases to recovering at the written request of the zemindar the channel rent together with the water-rates. But in such cases it will be necessary for canal officers to be placed in a position to keep the channels in a proper state of repair. It is not desirable to impose the collection of channel rent on the Canal Department as a duty. In some cases Messrs. Burrows, Thomson and Mylne may be taken as an example; the landholders have deliberately refrained from asking for channel rent from their own tenants, and in others, where the land is *bhaoli*, it is doubtful whether any rent can equitably be charged. Mr. Luson is of the contrary opinion, remarking that—

"Certainly he should at least pay for the construction of village channels."

121. The majority of the Committee look with much favour, not fully shared by the departmental member of the Committee, on the proposal to sell water for the supply of *aharas*. Mr. Odling considers that it is a matter in which great caution is required. It is recognized by the Committee that there is a risk of further water-logging the country, and that a supply could only be given when water is available without prejudice to leased areas.

Volume 1, page 78. Volume I, page 96.

The price proposed, one rupee for a discharge equivalent to a supply of one cubic foot per second for 12 hours though low, may be tentatively accepted, provided water is supplied from November to March only. To the supply of water in the months when the river is in flood, and the water heavily charged with silt, there is not only the grave objection of water-logging, but there is the imminent danger of the canal being silted up if constantly run at full supply. At present there are 14 steam dredgers at work, and it is with difficulty that the canals are at times kept open. Every extra cubic foot per second of supply deposits in the canal its quota of silt which must again be lifted out by steam power. It is therefore undesirable to fill *aharas* with canal water in this season at all, and, if allowed, a double charge sufficient to pay for the extra expense necessarily incurred should be levied. It is, however, in March, when the permission to take water for *aharas* will probably be most valued. The supply in the river in April, May and June is scanty, and generally there is no surplus water available for sale then.

Assessments and Collections.

122. The arrangements in these respects will remain much as at present, with the important exception that in the *kharif* season the areas included in the application will generally be measured at an earlier date than at present, and without reference to the patrols' *shudkar* or register of irrigation, which will be retained in a modified form to record the discharge through outlets. There will practically in this season at least be no unauthorised irrigation.

The Committee's recommendation has been followed except with regard to the increased number of Sub-Deputy Collectors it was proposed to employ partly for the purpose of disposing of complaints, and partly to admit of the localisation of the offices with the view of facilitating the collections.

Volume 1, page 78, section 250.

So far from it being likely that an increased revenue will be derived from the canals, it is nearly certain that the reverse will be the case. Though the area watered by the canals is steadily increasing, the assessments are decreasing owing to the extension of five-year leases. It is hoped that the work of the collection department will become lighter as these leases, which imply regular annual payments, extend.

The proposals of the Committee by no means sati the Special Deputy Collector, who is in favour of the or tion of the office of Deputy Revenue Superintendent the employment of four Special Dep Collectors, whose functions would pr tically be those discharged by the Sub-Deputy Collectors at present employed. Four sets of buildings for their residences and offices are asked and there would be extra office establishment in addit The addition to the work now carried out by the collec department proposed was the disposal of complaints and preparation of alteration statements.

Note dated the 25th May 1889, paragraphs 29-32.

123. It has been shown in paragraph 78 of this note nearly half the objections to assessment raised were at admitted by the canal officer to be correct and the ne sary orders passed A reference from another office w have led to the same result, but with a very appreci delay and extra trouble and work resulting in incre expense to Government in both departments. It was pointed out that on general grounds it was only that the canal officer should be given the opportu of correcting what was alleged to be an erroneous ch It is admitted that cultivators or others—

"Should be able to present any complaints or objections they have to make as to the effect of *orders* p by the Engineers before an indepe tribunal."

Volume I, page 79, section 253.

The word *orders*, which has italicised, is the key-note to the case. All that is ask that the Engineer should be given an opportunity of pa an order.

The actual alterations in the position of the colle department proposed are—(I) that orders regarding a ments passed by sub-divisional canal officers sha appealable direct to the Collector or to an officer v in this respect with the powers of a Collector, the int diate appeal to the divisional canal officer being aboli he will, however, continue to exercise revisional po (II) that the Deputy Collector shall be vested with to sanction alterations in the demand not affectin amount due, in certain cases remissions, and to finally with certain classes of irrecoverable items. It is be that this extension of the functions of the collecting d ment, which will materially lessen the number of compl can be carried out with the establishment as it at p stands, or at least without any material addition theret

124. I am altogether opposed to the creation of any class of Canal Deputy or Sub-Deputy Collector, or t increase in their numbers, which I do not think is call and as regards the former objection I find that supported by the Board of Revenue. The circle offic Daudnugger and Bikrum fill the same position a occupied by the Sub-Deputy Collectors in Shahaba their charges are materially less important and no imm alteration is called for. The expediency of placin collections in Patna and Gya under the Special I Collector, Shahabad, may be reserved for further co ation.

125. With the exception of a sanctioned office est ment, the Special Deputy Collector, Shahabad, is dependent on the amount placed at his disposal und for the payment of his mofussil establishment. W sanction of the Collector he appoints circle officers, *teh* &c., on pay from Rs. 50 per month and downward amount not exceeding 3½ per cent. on his collections year. On this subject the Committee observe—

"As a fact, what is realised as tehsildars' fees is, we beli paid away as commission, but is d the payment of fixed salaries to t and even to circle officers. Such a p may easily give rise to misunderstanding. We are of opi no value commensurate with the expenditure incurred is lik obtained by the payment of fees either to tehsildars or p It is a better arrangement not to allow fees. The collectio

Volume I, page 81.

e think, to be made as in other departments by establishments n a fixed salary without commission. We have therefore omitted ees altogether as an item of expenditure in future arrangements."

The only real objection which can be taken to the principle aid down by the Committee that fixed salaries shall be paid on the score of expense. The Deputy Collector makes the trongest objection to the limits proposed by the Committee, nd so far is supported by the Collector.

The matter is one which will have to be considered in letail with special reference to Mr. Power's remark that power hould be reserved to dismiss men at times of year when heir services are not required. The so-called circle officers hould certainly be appointed permanently and graded as illadars. Six zilladars as proposed by Mr. Power would replace the present establishment of seven circle officers. For the remaining establishment a limit should be fixed within which the Collector should be authorized to entertain such establishment as might be required, but the collections are diminishing and not likely to again show any important recovery, so that it is indispensable that the total expenditure shall not exceed that at present incurred The grant of a local allowance to the Special Deputy Collector has been repeatedly recommended by me. It should, I think, be attached to the appointment, which is very important, rather than be granted to the officer filling it at any particular time.

Volume II, page 27.

Intermediary Agency and Lambardars' fees.

126. When irrigation was first commenced, an attempt was made to appoint *lambardars*, who should both transact business on behalf of the cultivators with the Engineers and assist the Deputy Collector in collections. One moiety of their fees, then 10 per cent. on the assessments, was payable by each department. The arrangement was not found to be satisfactory; the canal officers and the collecting department were not always in accord as to the merits of particular *lambardars*, and eventually the fees, reduced to 6¼ per cent., were divided, the collecting department taking 3⅛ per cent., the sum now at their disposal for the payment of circle officer, *tehsildars* and others whom it was found expedient to retain on monthly salaries, and leaving 3⅛ per cent. to canal officers for the payment of *lambardars* who ceased to have any connection with the collections, but continued to act on behalf of the cultivators in matters connected with the presentation of applications, the receipt of permits, and the distribution of water amongst the signatories to the lease.

The *lambardars'* fees amount to a considerable sum, and their abolition would result in an appreciable saving to the State. Real work is, however, demanded from them, and it is proposed to increase both their duties and their responsibilities. They are required (I) to attend all measurements; (II) to obtain signatures to applications and to certify to the correctness of the same; (III) to attend to the distribution of water amongst the persons entitled thereto; (IV) to be present at the investigation of complaints by any canal officer or subordinate, and to give any information required in connection with irrigation.

It is now proposed that in addition they shall (V) distribute (*parchas*) to every ryot, and (VI) report at the end of the *kharif* season personally to the canal officer as to the state of the crops in the lease; (VII) report to the Deputy Collector all mutations in holdings; (VIII) to assist the collecting department by pointing out the residences of the persons assessed and identifying them. The duties are responsible and involve a considerable amount of physical exertion. It is probable and desirable that in most cases a Committee or *punchayet* will be appointed, but this will not diminish the amount of work to be jointly performed. It is absolutely necessary, in the irrigation season especially, that the *lambardar* shall devote a considerable amount of his time to his duties. He must be ready to trudge with the canal officers for several hours at a time in all weathers.

It is idle to expect that these duties will be performed b any one without remuneration—the are not the class of duties constitut ing an honourable burden for which remuneration is no found to be necessary, certainly not in this country.

Volume I, page 84.

On this point Mr. Mylne entirely agrees with Mr Odling, and his opinion is particularly valuable, as the firm themselves dis charge the duties of *lambardars* for large part of their estate, employing paid servants whos wages it is understood the allowance received in the way o fees is not sufficient to cover. The Collector is also o opinion that remuneration must be given, and refers to th prevalence of party spirit and factious opposition which, i is believed, has interfered with the successful working o the Chowkidaree Act.

Note dated 30th June 1883.

As the *lambardars* will in future be to a certain exten responsible to the Collector, it will b desirable that a portion of the fee levied shall be paid by him, but th duties to be performed in connection therewith will requir to be strictly limited. In particular they will have n concern with certificate cases. The total fees may in futur be limited to three per cent., of which two per cent. will b payable by the canal officer and one per cent. by th Collector, fractions of annas being omitted in payments.

Letter No. 8491 of the 31st August 1888.

127. The only practicable way of creating the interme diary agency so strongly insisted o by the Committee appears to be t extend the system under which leases are at present grante on the joint applications of a contractor and cultivators. Th contractor might be a zemindar or an association of three o four cultivators. It is essential that he shall have a benef cial interest in land included in the lease extending for i full term. The control of the outlet might ordinarily b made over to the contractor in these cases, and h might, if a resident zemindar, be himself allowed to pr pare the demand statements for hot weather irrigation, i which case only is there an extra charge. The remuneratio at present granted, 10 per cent., should not, however, be i creased, unless the contractor is prepared to take the risks bad debts, in which case 12½ per cent. might be allowe In leases of this kind the approval of the Collector to t contractors would be requisite. Long leases on the appl cation of the cultivators will continue to be granted; b in their case the *lambardar's* fees will be 5 per cent. on (on condition, of course, that it is earned), one per cent. which will be paid by the collecting department and t remainder by the canal officer.

Volume I, page 75.

128. It is proposed to abolish putwaries' fees, but it m be necessary to call on these men to attend measuremen or to attest the signatures to a lease, in which case th must be paid for the work done. A fee varying from annas to 2 rupees, in accordance with the time taken u will be authorized.

Administrative Control by Superior Officers.

129. It is not possible to permit appeals as a matter right to the Superintending Engineer. He has many oth duties besides the management of the Sone Canals, in whi his position is purely that of a controlling officer. H duties are in no respect of an executive nature, and it is u desirable that he should be called on to give decisions matters in which there is by law an appeal to the Collect Mr. Inglis says:—

"I think it is worthy of consideration whether the Superint Engineer should not be brought into immediate contact with the revenue work his subordinate officers."

Volume II, page 253.

It should certainly be expressly declared that the Supe intending Engineer exercises full revisional powers, a that orders passed by any canal officer shall be modified

ccordance with his directions. He should be required to ue definite orders regarding the limits within which leases various descriptions can be allowed, as the whole distribu- on of water from the canals must be arranged on one con- rted system.

There are also matters which might usefully be referred to e Superintending Engineer by the Collector. It is indis- nsable (recommendation VIII of the Committee) that the lection of irrigable blocks to be let on lease shall rest with ie canal officer. But it is not intended that this power shall e arbitrarily exercised. Leases cannot be granted in areas cluded by the Superintending Engineer; but outside these eas all persons complying with specified conditions have a oral if not a legal right to be supplied with water; in the se of an appeal to the Collector that officer should be ntitled to call on the Superintending Engineer to give his ritten opinion as to whether the grounds of refusal were his judgment sufficient. The same liberty should be iven in the case of village channels, where the matter is sually decided on professional considerations.

130. Remissions on other than legal grounds are at present anted by Government on the application of the Superin- nding Engineer. In most cases it is of importance that if ese remissions are granted at all they should be granted in me to prevent a demand actually being made. Whilst it necessary that the orders of Government shall be obtained here public money of large amount is involved, the Super- ntending Engineer might be vested with powers to grant xtraordinary remissions without previous reference to higher uthority, provided (I) that the water-rates shall not be re- uced below 10 annas per bigha, and (II) that the remissions n any one lease or for any single cause shall not exceed s. 500.

Summary.

131. The chief recommendations made are summarized elow—

I.—Five-year leases to be abolished, but to be replaced by leases for seven or three years, the former being sanctioned only where channels in really good order exist, the owners of which have been registered, and really suitable blocks can be obtained; the rate for these leases to be Re. 1-4 per bigha, the present five-year lease rate. Where the channels, though not necessarily involving waste, are not altogether satisfactory, or the block is not so good as is desirable, the lease to be for three years only, and the charge to be raised to Re. 1-9 per bigha.

II.—The lease to be in detail specifying all conditions, more especially regarding the outlets which the canal officer is not to be allowed to alter during the currency of the lease. The duty to be fixed as far as practicable on the results of past experience, the area under rice when the lease is entered on being mainly considered. Leases for seven years to be ordinarily refused for lands not previously irrigated, regarding which therefore *data* for fixing the discharge required is not available.

III.—Canal officers to be responsible for the supply of water through outlets, but to be allowed to delegate the custody of the outlet to *lambardars*, who will be required to close the outlets when water to the full extent required has been supplied, or in accordance with orders given by proper authority.

IV.—The *tatil* to be limited to five days after ten days consecutive supply.

V.—The assessment of lands irrigated without authority in the *kharif* season shall be prohibited except with the previous sanction of t Collector, where a criminal offence has be committed and the offender cannot be di covered.

VI.—The rates for *rabi* irrigation to be reduced a those for sugarcane modified.

VII.—No water to be supplied for *kharif* irrigation c applications filed after the 1st of Septemb except by volume, and in such cases half t amount payable to be recovered in cash befo water is supplied. The discharge of an ou let for a specified number of hours will l sold, and not a specified quantity of water.

VIII.—The length of village channels counting to t boundary of the lease to be in future limited one mile, crossings to be provided at t public expense, and existing village channe of more than one mile in length to be take over and maintained in future by Gover ment on certain conditions. The distanc mentioned will be measured in a straight lin

IX.—In the case of assessments or remissions a appeal to lie direct from orders passed by t Sub-divisional Canal Officers to the Collect or to an officer exercising the powers of Collector, who will be empowered to dire the Divisional Canal Officer to himself enqui and to report in the matter.

X.—The Superintending Engineer to be require to define the limits within which can water is available for (*a*) *kharif* irrigation c three or seven-year leases; (*b*) *kharif* irrig tion on annual leases; (*c*) *rabi* irrigation low rates; and (*d*) hot weather irrigation. Th it be expressly declared that Canal Office shall exercise all powers vested in them subordination to the Superintending Enginee and that they shall modify any order passe by them in accordance with his direction Subject to the revisional jurisdiction noted above, no appeal to lie to the Superi tending Engineer, but in any appeal to t Collector under section 91 regarding (*a*) village channels or (*b*) the refusal of a Can Officer to grant a permit on the ground c anticipated waste of water owing to the unsuit ability of the block proposed, the Collecto to be authorised to call on the Superintendin Engineer for his written opinion, which sha form part of the records of the case.

XI.—Water to be sold for the supply of *aharas* fro November to March only.

XII.—Joint and several liability to be abolished.

XIII.—Copies of the Revenue Report to be sent yearl to selected landholders, who will be asked favour Government with any suggestions fc improving the administration of the canal and, if it is considered necessary, a conferenc will be held with the Superintending Engine to discuss any possible improvements.

XIV.—In certain cases the Superintending Enginee with the concurrence of the Collector, to ha power to cancel leases or prohibit permi being given to particular villages unless a arrears of water-rates are discharged, or whe water is persistently and habitually wasted utilized for irrigating lands beyond the bou dary of the lease.

Recommendations involving a change in the law.

132. The following provisions appear to be equitable, b legislation is necessary to admit of their being carried out.

I.—It is certainly only right that in the case of *bhaoli* tenures the landlord should in one form or other be made to pay a share of the water-rates. The recommendation (section 223 of the Committee's report) meets the case.

Volume I, page 70.

II.—It should be made clear that water-rate is an encumbrance on the land of the same nature as rent, and any tenant should be allowed to create this encumbrance. At present this point appears to be doubtful, there being a presumption only (capable of being rebutted) in its favour.

Section 76(e) of the Act.

III.—Where water has been misappropriated, and the Magistrate is unable to detect the offender, the persons benefited should be assessed by the Collector without reference to whether the water was obtained by cutting a village channel or a canal or distributary. This is not recommended by the majority of the Committee; but, as a matter of fact, it is almost impossible to secure a conviction, as proof of the actual perpetrator of the offence is seldom forthcoming.

Volume I, page 92.

Volume I, page 100.

IV.—Provision should be made as recommended by the Committee. "That application of cultivators representing an area of 85 per cent. of a block shall bind all the remaining cultivators of a block whether they assent or not."

V.—The *users* not *owners* of village channels should be registered. This course would avoid difficult legal question as to ownerships.

ENT OF RAI JAY PRORASH LALL BAHADUR, DATED 4TH APRIL 1888.

133. The dissent* commences by assuming that it has been proved that *ahara* irrigation is generally more beneficial than igation from the canals, that former methods of irrigan have been actively interfered with by the Canal partment, that drainage has been obstructed and the blic health deteriorated by the canals, that the increased are nder cultivation is doubtful, that benefit from sugar cultivan has not been proved, and that the canals are no appreciale help in time of scarcity. No special grounds beyond neral references to the Committee's report are given for e conclusions drawn, which have been dealt with *seriatim* previous parts of the note, and will not be again referred

Volume I, pages 102-116.

The experience of 1888, if the Rai Bahadur had casion to visit the irrigated parts of the district, can rcely fail to have convinced him of the benefit which the ops received from the canals in that year, and the experiments Mr. H. Luson, C.S., and Messrs. Burrows, Thomson and lne, have at any rate set at rest any doubt that might be ertained, as to the productive power of any kind of land ll cultivated and sufficiently irrigated.

134. It is proposed by the Rai Bahadur, paragraph 46, that ases shall be granted under the control of the Agricultural epartment; paragraph 33, that no attempt shall be made to ve water to defined blocks, which is the key-note of Mr otton's proposals; paragraph 34, that no power shall be given canal officers to restrict the supply; and paragraph 21, that *tatil* shall be allowed. It is safe to say that under such onditions the value of the canals would approximate the Rai Bahadur's opinion of them. It would not be ible, where there was the least pressure, to get water ore than 20 miles from the head, and it would be impossible for canal officers, or indeed any one, to give limits ithin which it would be safe to grant leases.

135. The rates suggested by the Committee are paragraph 37 of the dissent and sections 283 and 285† of the Committee's report distasteful, and paragraph 43 of the dissent, five-year leases are stated to be unpopular. Objection is also, paragraph 35, taken to the system of occasional waterings, and annual leases at a higher rate suggested. In this latter particular it has been found possible to conform to the wishes expressed, provided application is made by the 1st of September. The area under five-year lease has not diminished, and the ryots are stated by Mr Luson to have shown, in 15 of the Deomraon villages, their opinion of the value of the water by, the tenure being *bhaoli*, agreeing to pay the landlord's share of the rates as well as their own.

† Volume I, page 87.

136. An endeavour has been made to remove all well-grounded causes of complaint, but the canal officers must conform to physical conditions; they have water for sale available at certain times only, and under certain restrictions which are not arbitrarily imposed, but necessary to admit of the supply through the canals not being interfered with by accumulations of silt.

It has not in practice been found that these conditions clash with the requirements of agriculture (paragraph 37 of the dissent), and canal water has in fact during the last two years been eagerly availed of, the dissatisfied cultivators being those to whom it was on sufficient grounds found necessary to refuse leases.

PAMPHLET BY BABOO KANDHJI SAHAI, B.A., B.L., ON CERTAIN ASPECTS OF THE SONE IRRIGATION QUESTION.

137. Baboo Kandhji Sahai, who, as Secretary to the Co-operating Committee referred to in section 4 of the report, gave valuable assistance in the enquiry, has written a pamphlet under the above title, of which I have received a copy, mainly with reference to the reports by Mr. Odling and Mr. Luson, published in the *Calcutta Gazette* for the 9th January and the 3rd of April 1889, referred to in paragraph 4 of this note.

138. The Committee are stated to have arrived at the following main conclusions:—

"(*a*). That the canals are on the whole beneficial to the country, now that they have rendered it impossible to revert to the old system of *ahar* irrigation.

"(*b*). That canal water is not beneficial to *rabi* or opium.

"(*c*). That the shudkar system is the root of all evil, and that it should make way for a better system in which the chances and opportunities of doing evil might be minimised to the lowest degree

"(*d*). That the magisterial powers in the hands of Engineers had not worked well.

"(*e*). That the collecting staff by its previous inaction and recent over-activity (put) gunpowder to the hidden flames,"

and brought the feeling of soreness and exasperation to a climax.

Statement (*a*) has been fully dealt with in the earlier paragraphs of this note. Statement (*b*) is probably, except as regards wheat, so far true that crops irrigated by well water give better results, much better in the case of opium watered from old wells. Statement (*c*).—It is proposed to abolish the *shudkar* system in the *kharif* season, where it has led to evils, and to in its place substitute the system recommended in page 35, under which—

"No water will be given, unless lease is executed beforehand, the tenants binding on the one hand to pay the water-rate, the Government binding itself on the other to supply the water timely."

As regards (*d*), the Committee's conclusions are not accurately stated. The Committee certainly on general principles recommend, section 169, the withdrawal of the magisterial powers, but they expressly state that they—

"notice the sparing manner in which these powers have been exercised, and we have no reason to doubt that, as a general rule, they have been exercised in the past with discretion."

Volume I, page 52.

The recommendation is in no way based on whether the powers had worked well or otherwise (*e*). The recovery of arrears was doubtless unpopular with the assessees, who had hoped to escape payment, but, as has been stated in the commencement of the note, the agitation was one of the results of the introduction of irrigation, without rules found by experience to be suited to the district.

It is stated that—

"Many other points have been found to which it is not necessary to refer to at present."

They are incidentally adverted to throughout the pamphlet, which it is right to say is obviously animated by a desire to improve the irrigation administration by suggestions offered in a spirit regarding which complaint cannot be made.

139. The main object of the pamphlet is, however, to show that the rates at present charged for water are unjustifiable. Paragraph 7 runs as follows :—

"Such is the summary of the recommendations of the Commission I shall begin with the last, for the lowering of rates, first, as being the most important, and without which, in the words of the Commission, no improvement will be accepted as an adequate outcome of the results of the Commission."

It is perhaps desirable that the arguments adduced in support of this contention shall be specially noticed; the other points have been fully commented on in previous pages of this note. Whilst the accuracy of the crop experiments which were carried out is not questioned, it is stated that the results are not such as would ordinarily be obtained—

"In ordinary course of business all the fields are not reaped at once, and generally a great amount is wasted in reaping, in threshing, in winnowing, before the grain is actually stored"

This loss is stated to reduce the yield to $\frac{8}{9}$ths of that estimated, and it is contended that Mr Luson's figures—

"should be reduced not only by what is called the co-efficient of shrinkage, but also by the co-efficient of wastage."

The objections raised are entirely met, as will be seen from the quotation below, in the experiments carried out by Messrs. Burrows, Thomson and Mylne, which gave an average outturn of 31 maunds 5 seers per bigah on grain weighed on the threshing floor at a distance from the field—

"The results obtained from the different sources are nearly identical. The figures of Messrs. Burrows, Thomson and Mylne are slightly lower than the rest, because a certain amount of wastage occurred from the method they adopted of drying the crop. They had it tied up in bundles and carried to head-quarters, so that some grain must have fallen out on the way. The wastage, however, would not be much greater than occurs usually when the cultivators carry the bundles from the fields. In my experiments there was absolutely no wastage, because as soon as it was cut the crop was sewn up in bags, which were afterwards opened only in my presence. Similarly in weighing wet crops upon the ground the canal officers would not make any waste."

In these experiments this particular source of error was certainly eliminated.

140. Further on in paragraph 9 it is suggested that it may be intended to infer that the average produce is 31 maunds an acre. Such is not the case; the above was the average of experiments on *good* crops; the average on the whole irrigated area for 1888 is $18\frac{7}{10}$ maunds per acre. The average of 1,227 experiments made by canal officers to date on average crops is $16\frac{3}{10}$ maunds, and it is contended that Mr. Luson's experiments go far to show that these were substantially accurate.

141. A number of calculations on the profits of cultivators, which afford no real information, are given, and it is then asked :—

"Is there any marked improvement in the export or import of the country? Is there any change in the condition of the people of canal tracts as distinct from non-irrigated tracts? These are questions which do admit of no equivocal answers. If we compare the export and the import of recent years with ten years back, we will find that increase in these items is not at all distinct from the general increase, which of course is due to the improvement of the yet undeveloped resources of the country.

"The export and import of a country have been truly regar the index of a country's material prosperity. If we would know whether a country has improved in its material wea should examine whether the import or the export has increased of the chief articles of import in this country is European piece With the spread of English education, and a desire to co Western ways of living in matters of convenience and com expected that the import of such goods would increase, even country did not improve in wealth. There is yet another fact always tends to increase the consumption of the articles of i The population is an increasing quantity which is attended increase in the value of imported articles in proportion to the incr the number of population. In this view of the case we would that the import of the district would show an increase in 188 that of 1874 in proportion to the two causes above referred to. I would compare the value of the European piece-goods impo the district in the year 1874, when the canals had no existence that imported in the year 1888, when they were placed in a fair ing order, and would prove that instead of showing an improv in the material condition of the people, as one would expect, canals were so beneficial to the country as we are led to beli shows a deterioration. If the contention of the other side correct, we should have found an increase in the value of the i more than what could be referred to the two causes above ment In the year 1874 during the first four months the value of the Eur piece-goods imported from Howrah was £128,568 (Statistical Rep Shahabad, page 269), but in the interval, i.e., from 1874 to 188 population increased from 17 to 18 lakhs; hence the import should increased in the proportion of 18 to 17, assuming every other ci stance to be the same—that is the value of the import whic would expect in 1888 is £140,441. If we now take into ac the other cause of increase which is an indeterminate quantit value of imported article would be more than the sum above But what do we actually find the value of European piece- imported in the district to be in the first four months of 1888 is not more than Rs. 16,15,410, which is equivalent to £1(at the present exchange rate (see for the value of the import, *cutta Gazette* Supplement, pages 721, 990, 1230, 1536, of Thus the consumption of the European piece-goods now is not is was in 1874."

142. The Statistical Department of this Governmen furnished the subjoined statement which gives the partic relied on by Babuo Kaudhji Sahai, not for four months, for 13 years :—

Statement showing the Imports into the Shahabad dis from Calcutta of piece-goods, European, during th years from 1876-77 *to* 1888-89.

Year.	Quantity.	Rate per maund.	Value
	Mds.	Rs.	Rs
1876-77	25,904	80	20,72,3
1877-78	31,198	80	24,95,8
1878-79	37,565	80	30,05,2
1879-80	39,125	75	29,34,3
1880-81	46,493	75	34,86,4
1881-82	46,101	75	34,57,5
1882-83	43,345	75	32,50,8
1883-84	46,537	72	33,50,6
1884-85	42,034	72	30,26,4
1885-86	55,162	68	37,51,0
1886-87	70,003	63	44,10,1
1887-88	56,136	63	35,36,5
1888-89		63	42,16,1

The Statistical Department states that figures prev to 1876-77 are not available, but those given do not ap to bear out the contention that the import of piece-goods not increased, and the assertion that—

"In the face of this fact the friends of the canals have no nor can they ever justify its* case to exist on its own merits"

* *Sic* in original.

is not altogether in keeping with the facts. The statem that—

"Care has been taken always to allow the errors to be in favor the canal"

appears, under the circumstances, to be of more t doubtful accuracy.

143. Another consideration is put forward, which is, that—

"In more favourable years, which are by God's grace more numerous than unfavourable, the canal water is either not at all required, or required as a luxury. It is only at long intervals that dry season recur."

Again—

"Therefore it is useless to lay much stress upon the failure of the *Hathea* water when it is known that the *Chitra* came opportunely to supply the place of the *Hastha*."

Out of 19 years in nine there was less than one inch of rainfall in the first twenty days of October, which covers the greater part of both the *Hatiya* and *Chitra*.

144. The arrangements during 1888 appear to have met with general approval, except from one point of view, regarding which the following remarks are made :—

"If a system works well or badly according as the person in charge of it is good or bad, the system is imperfect. But if the system does not change with change of hands, the system is a model of perfection. Viewed in this light, the present system stands condemned. It is almost admitted that in the year under review the canal authorities have worked better in all the departments than in previous years. The supply of water was satisfactory, the prayers of the cultivators were attended to, and generally speaking the arrangements were good. It may be asked how is it that it was not so successful in previous years. The recent agitation may be said to have produced this salutary effect. But when things can be managed better or worse according to the will of the officer, which may be voluntary, forced or interested, they must be placed on a better footing. In fact the successful management of this year carries with itself condemnation of the system. The proposed scheme differs from the existing, in that it offers the least opportunity for the exercise of individual idiosyncracies."

Reference is made by the writer to the falling off in five-year leases in the Buxar Division, whilst those in the Arrah and Eastern Sone Divisions were mostly renewed. The leases in the Buxar Division have this year largely increased, and the report shows clearly that there were special difficulties in Bhojepore, due partly to the area of land held *bhaoli* and partly to the cultivators being to a large extent Rajpoots or Brahmins. But the experience of one year has been sufficient to overcome even their reluctance to pay water-rates.

General Remarks.

145. On one point I quite agree with both Rai Jai Prokash Lall Bahadur and Baboo Kandjhi Sahai, and that is as succinctly stated in the Superintending Engineer's Revenue Report for 1888-89 :—

"It is fully recognised that lasting contentment can only result by securing irrigating cultivators full crops, and that anything short of this standard will whatever may be the measure of the benefits derived compared with the water-rates paid, lead to complaints which, though ill-founded, are to be avoided."

The system now proposed will, I believe, secure this end in the largest degree possible.

146. In the report the Committee acknowledge the services of various officials and gentlemen, foremost amongst whom is Mr. L. Mylne of the firm of Messrs. Burrows, Thomson and Mylne. To the gentlemen comprising this firm the thanks of Government are due, not only for services rendered in the course of this enquiry, which were important, but for a long course of assistance to the Irrigation Department, which has been more than once cordially and fully acknowledged both by Government and by the local Head of the Department, the Superintending Engineer. The suggestions they have made have always been deserving of the most attentive consideration as based on reliable data, and having in view the equitable treatment of both the cultivator and the canal officers.

The name of Baboo Kandhji Sahai is amongst those mentioned; his efforts to put the popular side of the question before Government and the Committee in a fair and becoming manner deserves recognition. The Committee specially acknowledge the assistance received from Mr. W. A. Inglis, Executive Engineer, and Baboo Sarodá Pershad Chatterjee, Deputy Collector.

147. Mr. Luson's report on the subjects into which he was directed to enquire is very full and complete It would not have been possible to deal with these subjects with anything approaching to the same certainty in the absence of the very valuable information collected by him. Mr. Luson has thoroughly earned the commendation of Government.

148. Mr. Cotton, the President of the Committee, brings to notice the assistance rendered by the Maharajah of Doomraon and his Dewan Rai Jai Prokash Lal, Bahadur, who was one of the members. It would have been difficult to have obtained the facilities necessary for the meetings without the assistance of the Maharajah, who declined to receive even a reimbursement of the actual expenses incurred. Mr. Cotton also mentions the candour and moderation displayed by Mr. Odling, from whom I have received material assistance in preparing this note.

149. The report of the Committee is in point of clearness and desire to introduce improvements all that could be wished. Alterations in the system in force, all in the direction pointed out by Mr. Cotton, have led to a considerable departure from the recommendations made by the Committee of which he was President; but none the less does he deserve the acknowledgments of Government for the valuable services he has rendered in the enquiry.

C. W. I. Harrison, *Lieut.-Col.*, R.E.,

Chief Engineer, Bengal.

APPENDIX I TO NOTE, DATED THE 14TH OF JANUARY 1890, BY COLONEL C. W. I. HARRISON, R.E., CHIEF ENGINEER, BENGAL, ON THE REPORT OF THE COMMITTEE APPOINTED TO ENQUIRE INTO THE ADMINISTRATION OF THE SONE CANALS.

Note by C. W. ODLING, ESQ., *Superintending Engineer, Sone Circle, on Drainage Works carried out and still required in connection with the Sone Canals, dated the* 14*th January* 1890.

IN sections 46 to 65 of the Report of the Committee appointed to enquire into the administration of the Sone Canals, the complaints regarding obstruction to drainage occasioned by the canal are adverted to. It is stated that much has already been done, but that much remains to be taken up. The necessity for care and caution is admitted, but the paramount importance of the subject is urged as a reason for continuing to pay the utmost attention to it.

2. Since the Committee sat, the matter has continued to receive the fullest attention. There was an unusually heavy fall of rain in August 1888, and data have been obtained which has admitted of a large number of projects being sanctioned after full and thorough investigations based on reliable observations.

A list of drainage works sanctioned from 1884-85 to 1886-87 is given at pages 124-125 of Vol. I of the Committee's Report. Works estimated to cost Rs. 1,61,861 have since been sanctioned, and a complete list of these, as well as of those shown in the report, is appended to this note. Material progress, it can scarcely be denied, has been made.

3. The statement following gives particulars regarding the heavy fall of rain mentioned in the preceding paragraph.

Statement of rainfall for the period 26th to 29th August 1888.

STATIONS.	MONTH AND DATE.				
	26th August 1888.	27th August 1888.	28th August 1888.	29th August 1888.	Total.
Eastern Sone Division.	Inches.	Inches.	Inches.	Inches.	Inches.
Bankipore	2·50	2·90	0·25	0·00	5·65
Bikram	2·20	6·25	0·50	0·00	8·95
Daudnagar	1·70	5·85	1·75	0·00	9·30
Average ...	2·13	5·00	0·83	0·00	7·96
Buxar Division.					
Buxar	0·00	5·60	4·00	0·25	9·85
Sikroul	2·30	7·05	1·20	0·40	10·95
Jumrore	0·00	4·15	2·41	0·20	6·76
Basawan	0·00	4·07	1·27	1·11	6·45
Average ...	0·57	5·22	2·22	0·49	8·50
Arrah Division.					
Arrah	0·04	7·70	2·27	0·00	10·01
Ageaon	2·75	8·30	0·50	0·00	11·55
Nasrigunj	1·25	5·01	1·85	0·00	8·11
Ramnagar	0·58	6·90	2·90	0·60	10·98
Koath	0·00	9·00	0·60	0·00	9·60
Average ...	0·93	7·38	1·62	0·12	10·05
Sone Circle average of 12 stations ...	1·11	6·07	1·62	0·21	9·01

The average fall at all stations on the 27th of August exceeded six inches, followed by upwards of one inch and a half on the following day, so that the opportunities for observation were very favourable, and they were taken advantage of.

4. In the following statements all cases where drainage was found to be obstructed are mentioned, the action taken to remedy it being also noted:—

Eastern Sone Division.

Locality.	Nature of obstruction.	Size of cut or breach.	Action taken.
Patna Canal, 9½ mile ...	Water impounded against canal bank.	Nil ...	The existing drainage cut has been extended.
Ditto, 14th mile ...	Ditto ...	Nil ...	Drainage channel provided in sanctioned estimate for extending Weir II, Patna Canal.
Ditto, 16½ „ ...	Ditto ...	6′ wide ...	Culvert built.
Ditto, 28th „ ...	Ditto ...	Nil ...	Pipes 12″ in diameter fixed.
Ditto, 11th „ ...	Ditto ...	Nil ..	Two pipes fixed, 50 bigahs only affected.
Mali Distributary, 7th mile ...	Ditto ...	Nil ...	Estimate for works required nearly completed.
Khojassa Distributary, 22nd mile.	Ditto ...	Nil ...	Estimate for syphon under preparation. Drainage area ½ square mile.
Khojassa Distributary, 24th mile.	Ditto ...	6′ wide ...	Estimate for syphon under preparation. Drainage area ¾ square mile.
Emamgunj Distributary, 2nd mile.	Ditto, but to a very limited extent.	Nil ...	Inlet estimate being prepared.
Emamgunj Distributary, 5th mile.	Ditto ...	Nil ...	Two pipes fixed. Drainage area 1 square mile.
Emamgunj Distributary, 20th mile.	Drainage water impounded.	Nil ..	Estimate for syphon sanctioned.
Unna Distributary ...	Ditto ...	Nil ...	Two pipes fixed. A syphon will be provided
Shamshernugger escape ...	Ditto ...	Nil ..	Two culverts sanctioned.

Arrah Division.

Locality.	Nature of obstruction.	Size of cut or breach.	Action taken.
Arrah Canal, 24th to 25th mile	Drainage water impounded.	Nil ...	Existing drainage cut cleared and outfall improved.
Rajpore Distributary, 2nd „	Ditto ...	2′	A small drainage cut made.
Rajpore Distributary, 7th „	Ditto ...	Nil ...	Ditto ditto.
Mongrowlia Distributary ...	Ditto ...	Nil ...	Under consideration.
Mouna Distributary ...	Ditto ...	4′	Temporary inlet provided and small drainage cut.
Doomraon Canal, 7th mile ...	Ditto ...	17′	Two syphons have been constructed and an inlet and drainage cut are in progress.
Doomraon Canal, 9th „ ...	Ditto ...	17′	
Doomraon Canal, 17th „ ...	Ditto ...	12′	Estimate under preparation.
Sukunea Distributary ...	Ditto ...	20′	Apparently an accident, not the result of obstructed drainage.
Arrah Canal, parallel channel, 35th mile.	Ditto ...	9′	The Chouri drainage cut under construction provides for the drainage of this part of the country.
Panmaree Distributary, 5th mile.	Ditto ...	10′	
Panmaree Distributary, 6th mile.	Ditto ...	32′	
Panmaree Escape, 7th mile ...	Ditto ...	15′	Plans for remodelling this work are under preparation.
Dillia Distributary, 1st mile ...	Ditto ...	5′	Drainage culvert built.
Dillia Distributary, 4th „ ...	Ditto ...	8′	Apparently an accident; drainage not obstructed.
Jytpore Distributary, 1st mile	Ditto ...	6′	Estimate for drainage cut being prepared.
Jytpore Distributary, 5th „	Ditto ...	13′	Caused by village channels belonging to private owners; under consideration.
Arrah Canal, parallel channel, 43rd mile.	Ditto ...	5′	The breaches were cuts made by villagers. Obstruction doubtful.
Arrah Canal, parallel channel, 45th mile.	Ditto ...	6′	
Arrah Canal, parallel channel, 48th mile.	Ditto ...	18′	Inlet built.
Asni Distributary, 1st mile ...	Ditto ...	10′	Under consideration.
Koelwar Distributary, 14th mile	Ditto ...	Nil ...	Syphons being constructed.
Ekwari Distributary	Ditto ...	Nil ...	

Locality.	Nature of obstruction.	Size of cut or breach.	Action taken.
Behcea Branch Canal, 12th mile and parallel channel.	Flood water from Sydha syphon impounded.	25′	Under consideration. A proper outfall from the Sydha syphon is required, but there are many difficulties, as the natural drainage is intersected by *aharas*; an inlet into the canal for from 100 to 150 cubic feet per second is admissible.
Behcea Branch Canal, 13th mile	Flood water impounded.	12′	
Kuteya Distributary, 1st mile	Breached from canal.	25′	Caused by escape of water from canal.
Kuteya Distributary, 3rd mile	Water impounded against bank.	20′	Under consideration; outfall for discharge through syphons under Gudhani Distributary required. The necessary survey has been made and levels taken.
Kuteya Distributary, 4th mile	Ditto ...	10′	
Kuteya Distributary, 6th mile	Ditto ...	10′	
Gudhani Distributary, 2nd mile	Ditto ...	6′	Existing syphons apparently sufficient but outfalls, as mentioned above required.
Gudhani Distributary, 3rd mile	Ditto ...	10′	
Gudhani Distributary, 4th mile	Ditto ...	15′	
Gudhani Distributary, 5th mile	Ditto ...	6′	
Naranpore Distributary, 4th mile	Ditto ...	5′	Not yet taken up.
Naranpore Distributary, 3rd mile	Ditto ...	10′	
Gyanpore Distributary, 3rd mile	Ditto ...	5′	Syphons under construction.
Gyanpore Distributary, 4th mile	Ditto ...	6′	
Kuteya Factory Distributary, 1st mile.	Ditto ...	19′	Ditto ditto.
Kuteya Factory Distributary, 2nd mile.	Ditto ...	14′	
Bachire Drainage Cut, 4th mile	Ditto ...	25′	Inlets will be arranged for; possibly cuts on the bank will suffice.
Bachire Drainage Cut, 5th mile	Ditto ...	25′	

Bwxar Division.

Locality.	Nature of obstruction.	Size of cut or breach.	Action taken.
Bhojcpore Distributary, 3rd mile.	Drainage water impounded.	15′	A drainage cut of some magnitude required. Project approved by Chief Engineer; detailed estimate under preparation.
Saiyonhee Distributary, 4th mile.	Ditto ...	6′	Drainage water for the present passed down side cuttings. Under consideration.
Gurrah Distributary, 2nd mile	Ditto ...	10′	Small syphon required; estimate under preparation.
Salya Distributary, 3rd mile ...	Ditto ...	6′	Area affected small; all waste land.
Chousa Canal, 11th to 17th mile	Ditto .	Nil ...	Drainage cut sanctioned; work commenced.
Kochus Distributary, 1st mile	Ditto ...	Nil ...	Existing drainage cut will be improved. Funds available on sanctioned estimate.
Kochus Distributary, 8th mile	Doubtful ...	19′	It is stated that drainage is not impounded, but that breaches are due to nature of soil. Under enquiry.
Kochus Distributary, 9th mile	Ditto ...	15′	
Kochus Distributary, 11th mile	Ditto ...	15′	
Kurbasi Distributary, 1st mile	Drainage water impounded.	4′	Syphon under construction.
Khurghun Distributary, 1st mile.	Ditto ...	Not given	Under investigation.
Khurghun Distributary, 4th mile.	Ditto ...	Ditto ...	Extra opening in syphon being provided.

5. It will be noticed that in the majority of the cases mentioned, steps have actually been taken by which whatever obstruction existed has been remedied. It is only in years when there is an exceptionally heavy fall of rain in a limited time that minor obstructions become apparent, and any delay in carrying out the necessary work is due to this cause. The major works, such as the Chousa catch drain, estimated cost Rs. 57,448, the Doomraon drainage cut, estimated cost Rs. 18,201, and the Chowri drainage, estimated cost Rs. 22,412, have been the subject of prolonged investigations, and the exact plans adopted have been only settled after several discussions with the Chief Engineer, and the most careful consideration of all the interests involved.

6. The large works still required are those in connection with the Kuntiya Distributary, miles 1 to 5, the Burhowlie and Tar Distributaries, the Doomraon Canal, 18th mile, and the Bhojepore Distributary, 3rd mile. The main features of the plans for the latter work have been approved of by the Chief Engineer, and surveys and investigations regarding the remaining three are in progress.

C. W. Odling,

Superintending Engineer, Sone Circle.

List of Drainage and Protective Works sanctioned since 1884-85.

EASTERN MAIN CANAL SERIES.

PARTICULARS.	Authority.	Amount of estimate.	Total.	REMARKS.
1884-85.		Rs.	Rs.	
Estimate for a syphon under the head Khojasa distributary at 26th mile, 3,760 feet.	Superintending Engineer's No. 360, dated 24th January 1885.	344		
Estimate for two lines of Raneeganj pipes under the Khojasa distributary at 25th mile, 4,743 feet.	Ditto ditto ...	189		
			533	
1885-86.				
Estimate for an aqueduct overfall on drainage cut at the 43rd mile of the Patha canal.	Superintending Engineer's No. 2697, dated 3rd July 1885.	87		
Estimate for Belsar drainage cut	Superintending Engineer's No. 450, dated 13th February 1886.	715		
Estimate for a syphon to pass water from the Poonpoon river under the Futtehpore distributary.	Superintending Engineer's No. 1020, dated 25th March 1886.	395		
			1,197	
1888-89.				
Estimate for an escape from Rowa distributary, Patna canal.	Bengal Government No. 872—I., dated 18th May 1888.	5,362		Chargeable to distributaries.
Estimate for a drainage inlet into the Patna canal at 16¼ miles, on the left bank.	Superintending Engineer's No. 130, dated 8th January 1889.	271		
			5,633	
1889-90.				
Estimate for raising right bank of the Manora distributary and protecting the village Kharati by an embankment.	Bengal Government No. 918—I., dated 20th June 1889.	7,882		Ditto ditto.
Estimate for a syphon at 20¼ mile of the Khojasa distributary, Patna canal.	Superintending Engineer's No. 3467, dated 6th August 1889.	218		Ditto ditto.
Estimate for protecting embankments round certain villages between the Poonpoon river and Futtehpore distributary.	Bengal Government No. 93—I., dated 20th June 1889.	4,494		
Estimate for two masonry inlets for drainage at 0 mile, 500 feet, of Shamshernuggur escape, 24th mile, Patna canal.	Bengal Government No. 1487—I.A., dated 11th October 1889.	436		
Constructing a syphon for drainage at the 19¼ mile of the Emamganj distributary.	Submitted to Chief Engineer, No. 4852, dated 25th November 1889.	1,602		Ditto ditto
			14,632	
			21,995	

C. W. ODLING,

Superintending Engineer, Sone Circle.

List of Drainage and Protective Works sanctioned since 1884-85.

WESTERN MAIN CANAL SERIES.

PARTICULARS.	Authority.	Amount of estimate.	Total.	REMARKS.
1884-85.		Rs.	Rs.	
Estimate for the preliminary operations in the Loharabad (Peero drainage cut), Behea branch canal.	Bengal Government No. 5877, dated 28th November 1884.	472		
Estimate for constructing an escape to the right parallel channel by the inlet into the Raghunathpore distributary (Doomraon branch canal).	Superintending Engineer's No. 4618, dated 1st September 1884.	413		
Estimate for constructing a culvert over drainage cut No. 5, opposite fall No. 9, Doomraon branch canal.	Superintending Engineer's No. 98, dated 8th January 1885.	301		
Estimate for constructing a culvert over the road opposite the Raghunathpore bungalow (Doomraon branch canal).	Superintending Engineer's No. 651, dated 11th February 1885.	240		
Estimate for constructing a drainage culvert under Panmaree distributary escape channel (Arrah canal).	Superintending Engineer's No. 1266, dated 19th March 1885.	849		
	Carried over ..	2,275		

PARTICULARS.	Authority.	Amount of estimate.	Total.	REMARKS.
		Rs.	Rs.	
1884-85—*concluded.*	Brought forward ...	2,275		
Estimate for drainage cut from the Rajpore village to the Dunwar escape (Arrah canal).	Superintending Engineer's No. 1463, dated 31st March 1885.	313		
Estimate for an escape channel from the Moohadah distributary (Buxar Division).	Bengal Government No. 1585—I., dated 24th October 1884.	2,659		
Estimate for drainage for the Buxar Railway station (Buxar Division).	Superintending Engineer's No. 5621, dated 10th November 1884.	950		
Estimate for constructing an escape channel from Khowrnabad distributary, Main Western Canal (Buxar Division).	Bengal Government No. 316—I., dated 24th February 1885.	3,126		
Estimate for extra land required to be taken up for terminal portion of the escape to the Buxar Jail water-supply channel (Buxar canal).	Bengal Government No. 469—I., dated 14th March 1885.	122		
Estimate for constructing an escape channel from Gurra Chowbey (Buxar canal).	Bengal Government No. 522—I., dated 23rd March 1885.	7,484		
Estimate for an inlet at 12th mile, 20 chains, Doomraon branch canal.	Superintending Engineer's No. 4425, dated 21st August 1884.	334		Chargeable to distributaries.
1885-86.			17,269	
Estimate for an escape channel from the Panjraon distributary, Gurra Chowbey branch canal.	Bengal Government No. 13—T. I., dated 24th April 1885.	4,423		
Estimate for a drainage cut along the Koormooree distributary from 5th mile, 1,760 feet, to 5th mile, 1,760 feet (Behcea branch canal).	Superintending Engineer's No. 2188 dated 28th May 1885.	149		
Estimate for a syphon under the Behcea branch canal at 12th mile, 2,290 feet.	Superintending Engineer's No. 2182, dated 28th May 1885.	1,869		
Estimate for constructing an escape channel from the Bulthory distributary, Main Western Canal (Buxar Division).	Bengal Government No. 779—I., dated 25th June 1885.	6,103		
Estimate for constructing drainage culverts in the Jamrore sub-division, Chowsa canal (Buxar Division).	Superintending Engineer's No. 2748, dated 6th July 1885.	1,762		
Estimate for constructing an escape channel from the Karghar distributary, Gurra Chowbey branch canal.	Bengal Government No. 874—I., dated 21st July 1885.	6,019		
Estimate for a syphon at 3rd mile, 2,980 feet, of the Goeanpore sub-distributary, Behcea branch canal.	Superintending Engineer's No. 2904, dated 21st July 1885.	161		
Estimate for the proposed extension to the Bucharee drainage cut, Behcea branch canal.	Bengal Government No. 93—I., dated 14th January 1886.	57,673		
Estimate for a syphon under the Unwas distributary which takes off from the Chowsa branch canal of the Buxar canal series.	Superintending Engineer's No. 237, dated 22nd January 1886.	1,045		
Constructing an escape channel from the Gurria sub-distributary (Buxar canal).	Bengal Government No. 162—I., dated 23rd January 1886.	3,339		Ditto ditto.
Escape Santh distributary (Buxar) ...	Bengal Government No. 459—I., dated 11th March 1886.	2,603		Ditto ditto.
Escape from Amarpur sub-distributary (Buxar canal).	Bengal Government No. 466—I., dated 12th March 1886.	2,953		Ditto ditto.
1886-87.			88,099	
Estimate for a syphon under the Besainee sub-distributary at 2¼th mile, Arrah canal.	Superintending Engineer's No. 1140, dated 5th April 1886.	1,395		
Estimate for a culvert over drainage cut No. 4, Doomraon branch canal.	Superintending Engineer's No. 1179, dated 7th April 1886.	171		
Estimate for a syphon and drainage cut at 1st mile, 765 feet, and bridge at 1st mile, 5,080 feet, on Gudhani sub-distributary, Behcea branch canal.	Bengal Government No. 65—T. 1., dated 13th May 1886.	4,392		
Estimate for a drainage channel at Chandee on the 15th mile, Buxar canal.	Superintending Engineer's No. 2—011, dated 10th June 1886.	1,398		
Amount expended on the drainage cut, Waina distributary.	Bengal Government No. 1456—I.A., dated 30th September 1886.	128		
Estimate for a bridge over the Jamorhi extension drainage cut at 3rd mile, 51 chains.	Bengal Government No. 406—I., dated 10th March 1887.	556		
Syphon culvert under the Behcea branch canal, 2nd mile, 3,250 feet.	Bengal Government No. 216—I., dated 5th February 1887.	5,272		Ditto ditto.
1887-88.			13,372	
Estimate for constructing nine drainage culverts in the Jamrore sub-division (Chowsa).	Bengal Government No. 605—I., dated 16th April 1887.	2,160		Ditto ditto.
Estimate for a drainage culvert under the Koormooree distributary at 9th mile 2,295 feet.	Bengal Government No. 1145—T.I., dated 16th July 1887.	2,094		
	Carried over	4,254		

PARTICULARS.	Authority.	Amount of estimate.	Total.	REMARKS.
		Rs.	Rs.	
1887-88—*concluded.*	Brought forward ...	4,215		
Providing the Bhojepore distributary with an escape at 22¼ mile.	Bengal Government No. 1994—I., dated 16th December 1887.	2,075		Chargeable to distributaries.
Constructing a syphon culvert with outfall drain at 10¼ mile, Doomraon branch canal	Bengal Government No. 200 I., dated 10th February 1888.	3,312	9,671	Chargeable to reserve for general purposes.
Estimate for drainage culvert under Panmari distributary.	Bengal Government No. 880—I., dated 18th May 1888.	683		Chargeable to distributaries.
Constructing a weir in the Behta abara ...	Bengal Government No. 1081—I., dated 22nd June 1888.	2,127		
Estimate for a drainage cut required at the 5.h mile of the Rajpore distributary (Arrah Division).	Bengal Government No. 1403—I., dated 12th July 1888.	505		Ditto ditto.
Estimate for drainage culvert required to be constructed in connection with the Dilla distributary	Bengal Government No. 120—I., dated 23rd January 1889.	511		Ditto ditto.
Estimate for constructing the Chownri drainage cut	Bengal Government No. 472—I., dated 20th March 1889.	22,412	26,268	
1889-90.				
Estimate for land required to be taken up for repairing banks of the Kunteya escape channel.	Bengal Government No. 600—I., dated 22nd April 1889.	282		
Estimate for drainage works required in connection with the Chowsa canal distributaries.	Bengal Government No. 618—I.A., dated 23rd April 1889.	1,929		Ditto ditto.
Estimate for drainage works required in connection with the Chowsa canal.	Ditto ditto ...	425		Chargeable to reserve for general purposes.
Constructing a syphon at 6th mile, 21 chains, Doomraon branch canal.	Bengal Government No 647—I., dated 26th April 1889.	5,703		Chargeable to distributaries.
Constructing syphon at ¼th mile, Kurhasi distributary, from the Chowsa branch canal.	Bengal Government No 718—I.A., dated 16th May 1889.	1,131		Ditto ditto.
Constructing a drainage cut in village Bihta in the Arrah canal.	Bengal Government No. 776—I.A., dated 21st May 1889.	651		
Constructing an escape channel from the Rajpore distributary.	Bengal Government No. 1032—I.A., dated 21st June 1889.	875		Ditto ditto.
Constructing an inlet and escape for the left parallel channel, Arrah canal, at 50th mile, 20 chains.	Bengal Government No. 1116—I.A., dated 26th July 1889.	700		Ditto ditto.
Constructing a syphon culvert for drainage under the Gecanpore distributary, 1st mile, 36 chains.	Bengal Government No. 1118—I.A., dated 26th July 1889.	671		Ditto ditto.
Constructing a syphon at 0 mile, 32 chains under the Kunteya Factory sub-distributary in the Arrah Division.	Bengal Government No. 1140—I.A., dated 23rd July 1889.	391		Ditto ditto.
Constructing an escape on the right bank of the Chowsa canal at 16th mile, 3,000 feet.	Bengal Government No. 1318 I.A., dated 21st August 1889.	1,851		Chargeable to reserve for general purposes.
Constructing an escape channel at the 8th mile, 5,122 feet, of the Kunteya distributary.	Bengal Government No. 1147 I., dated 28th September 1889.	9,705		Chargeable to distributaries.
Constructing two syphon culverts under the Ekwary distributary at 3rd mile, 38 chains, and 42nd mile, 21·8 chains.	Submitted to Chief Engineer, No. 5093, dated 4th November 1889.	1,550		Ditto ditto.
Constructing the Chowsa catch-drain ...	Submitted to Chief Engineer, No. 4851, dated 24th November 1889.	57,448		Since sanctioned.
Constructing drainage cuts at the 7th and 8 miles, Doomraon branch canal.	Submitted to Chief Engineer, No. 4896, dated 27th November 1889.	18,201		Ditto ditto.
Constructing a bridge over the Kytheo drainage cut at 1st mile, 12 chains.	Superintending Engineer's No. 5330, dated 17th December 1889.	792		Chargeable to drainage and protective works.
Constructing a bridge at 3¾ mile of the Dunwar escape channel.	Bengal Government No. 41, dated 2nd January 1890.	3,372		Ditto ditto.
			1,05,657	
			2,60,576	

C. W. ODLING,

Superintending Engineer, Sone Circle.

The 14th January 1890.

No. 37Mne., dated Calcutta, the 10th February 1890.

The following report of the 11th quarterly inspection of the Dock Works at Kidderpore, which are being carried out by the Commissioners for making Improvements in the Port of Calcutta, is published for general information.

By order of the Lieutenant-Governor of Bengal,

W. B. BESTIC,

Under Secy. to the Govt. of Bengal, P. W. Dept.

QUARTERLY INSPECTION OF THE KIDDERPORE DOCK WORKS.

No. 963, dated Calcutta, the 6th-7th February 1890.

From—H. JOLL, Esq., and W. CONNAN, Esq.,
To—The Secretary to the Government of Bengal, Public Works Dept.

IN accordance with the order of the Government of Bengal, memorandum No. 1:0 (Marine) of the 27th ultimo, we have the honour to report that the 11th quarterly inspection of the Kidderpore Dock Works was made on the 5th instant.

2. The usual tabular statement and the index plan showing the work done during the quarter ending 31st December 1889, and the total amount executed from the commencement, which have been prepared by the Superintending Engineer of the Dock Works, are already with Government.

3. The progress during the quarter is under-noted.

PERMANENT WORKS.

Sixty-feet Lock.—The work is nearly completed, and only 6·8 per cent. of the masonry now remains to be done, 195,000 cubic feet of masonry having been built during the quarter.

Eighty-feet Entrance.—Completed nearly up to coping level. 72,792 cubic feet of masonry was built during the quarter, 10·7 per cent only remaining to be done.

Double Entrance to Dock No. 1.—The erection of the gates was commenced and 233,800 cubic feet masonry built during the quarter, only 13 per cent. remaining to be done.

Tidal Basin.—The graving dock entrance being ready, work was partially resumed during the quarter, and 12,000 cubic feet of masonry was built and 330,000 cubic feet excavation dug. About 22·5 per cent. of quay wall foundation and 18·7 per cent. of masonry remain to be done.

Graving Dock.—70,000 cubic feet of masonry and 85,000 cubic feet of earthwork were done during the quarter. 23·5 per cent. of the brickwork and 10·8 of foundation remain to be done.

Government Graving Dock.—Work on this dock was begun during the last quarter. 1,020,000 cubic feet of excavation were done during the quarter, and the timber trenching for the foundation is now in hand.

Dock No. 1.—363,385 cubic feet of the quay wall masonry and 3,528,992 cubic feet of excavation were done during the quarter. About 9·2 per cent. of brickwork and 24·3 of excavation remain to be done. During the quarter, 129 running feet of foundation was done, only 4·9 per cent. remaining to be done.

Boat Canal.—During the quarter, 774,093 cubic feet of excavation and 113,056 cubic feet of masonry were done, making in all about 70 per cent. of the total estimated amount. The erection of the main girders of the Diamond Harbour road bridge was nearly finished, and the rail arches for both this and the Tallygunge road bridge were completed. The erection of the gates of the lift lock is now in hand, and special measures are being taken for the excavation required in the Chetla Hât lock.

Subsidiary Works.—The hydraulic engine-house has been almost completed with the exception of the chimney shaft and the accumulator tower, and the engines and boilers have been erected in it. The foundations of the main pumping station are completed and ready for the erection of the machinery on its arrival from England.

Expenditure.—The total expenditure up to the end of the quarter under review is reported to be Rs. 1,62,15,553, of which Rs. 1,35,56,930 represents outlay on works and Rs. 26,58,623 outlay on account of land.

Sanitary.—A fever epidemic prevailed among the workpeople during the quarter which caused a considerable mortality and raised the death-rate to 48·61 per 1,000 per annum, against 12·56 in the previous quarter; the death-rate for the same quarter last year being 35·82. The average number of work-people employed during the quarter was 6,537, amongst whom there were 26·3 deaths.

GENERAL REMARKS.

We are of opinion that fair progress has been made with the works, and that, so far as we have been able to judge from a quarterly inspection, the quality of the work done is all that could be desired.

Rainfall, Weather, and State and Prospects of the Crops.

tatement showing Rainfall, Weather, and State and Prospects of the Crops in the different districts of Bengal, as reported to Government, during the week ending the 8th February, 1890.

No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
ENGAL.			
	Western Districts.		
BURDWAN DIVN. 1	Burdwan Feb. 8, '90	Nil	Weather—cold. Outturn of *rubbi* and other winter crops rather unfavourable Potato fair. Prices of common rice :— Srs. Burdwan ... ... 17½ Culna ... . 16 Cutwa ... ... 16½ Kaneegunge ... ... 20 } per rupee.
2	Bankoora „ 8, '90	Nil	Weather—seasonable. Prospects of *rubbi* crops continue good. Coarse rice selling at 19 seers per rupee at Sudder and 20 seers at Bishenpore.
3	Birbhum „ 8, '90	Nil	Weather—seasonable. State and prospects of sugarcane and winter crops good. Rice selling at 16½ seers per rupee at Soory and 16 seers at Rampore Hât.
4	Midnapur „ 8, '90	Nil	Weather—seasonable. General prospects fair. Harvesting of rice nearly over in Contai. Indigo and *rubbi* doing well. Prices of rice :— Srs. Sudder ... ... 18 Contai ... ... 24 Tamluk .. .. 18 Ghatal ... ... 20 } per rupee.
5	Hooghly „ 8, '90	Nil	Weather—cold. *Rubbi* crops thriving well. Prices of common rice : — Srs. Sudder and Serampore ... ... 12½ Jehanabad ... ... 17 } per rupee.
	Howrah „ 8, '90	Nil	Weather—cool. *Rubbi* crops doing well. Transplantation of *boro* crop going on. Prices of common rice :— Srs. Howrah ... ... 13 Uluberia ... ... 16 } per rupee.
	Central Districts.		
PRESIDENCY DIVN. 6	24-Perghs. Feb. 8, '90	Nil	Weather—cool. *Amun* harvest completed. Threshing going on. *Rubbi* crops doing well. Ploughing going on in some parts. Common rice selling at 16 seers per rupee.
7	Nuddea „ 8, '90	Nil	Weather—seasonable. Prospects of crops now on the ground favourable. Harvesting of sugarcane and *arhar* still going on. Ploughing for *aus* rice has commenced.
8	Khoolna „ 8, '90	Nil	Weather—seasonable. Reaping of *amun* completed ; outturn 13 annas, as reported before. State of the *boro* crop, the transplantation of which is nearly completed, is good, and of *rubbi* fair.
9	Jessore „ 8, '90	Nil	Weather—very cold. *Amun* harvesting nearly over; outturn 12 annas in Jhenidah. Spring crops doing fairly well. Price of new rice 14 to 16 seers per rupee.
10	Moorshedabad „ 8, '90	Nil	Weather—bright and cold. Prospects of *rubbi* continue good.
RAJSHAHYE DIVN. 11	Dinagepur „ 8, '90	Nil	Weather—warm during the day and cold at night. Nights still very foggy and damp. Prospects of crops continue good.
12	Rajshahye „ 8, '90	Nil	Weather—cold and seasonable. Harvesting of winter rice nearly finished with good outturn. Prospects of *rubbi* crops also good.
13	Rungpur „ 8, '90	Nil	Weather—seasonable. Land is being prepared for *aus* and jute. Prospects of tobacco, wheat and other *rubbi* crops continue good. Prices stationary.
14	Bogra „ 8, '90	Nil	Weather—cold and pleasant. Foggy mornings. Reaping of *amun* finished. Other crops being reaped. Gram, *khesari*, *rai*, peas, and wheat promising. Rice sells at 22 seers per rupee at head-quarters.
15	Pubna „ 8, '90	Nil	Weather—fine and cold. Outturn of *amun* in Serajgunge at least 14 annas, and in Sudder subdivision 12 annas. Sugarcane 8 annas. Mustard deficient. Other cold-weather crops satisfactory. Price of rice slightly lower.
16	Darjeeling „ 8, '90	Nil	Weather—very cold and bright. Crop prospects generally favourable.
17	Julpigoree „ 8, '90	Nil	Weather—seasonable. Cutting of *haimanti* paddy completed and 14 annas outturn obtained. Condition of tobacco good. Prices stationary.

No.	District and date of return.	Rainfall at under Station in inches.	Character of the weather and state and prospects of the crops.
BENGAL—*concluded*.			
	Eastern Districts.		
DACCA DIVN. 18	Dacca Feb. 8, '90	Nil	Weather—seasonable. Winter crops doing well. Mustard, pulses and sugarcane are being cut. Fodder is available. No special change in the prices of food-grains. Common rice 13 to 16 seers per rupee.
19	Furreedpur „ 8, '90	Nil	Weather—seasonable. Prospects of *rubbi* crops fair. Sugarcane cultivation progressing. *Boro* being sown in char lands. Coarse rice selling at 14 seers per rupee at Sudder, 15 seers at Madaripore, and 17 seers at Goalundo.
20	Backergunge „ 8, '90	Nil	Weather cool and fair. Harvesting of *aman* completed; outturn estimated at 16 annas. Common rice selling at 16 seers per rupee.
21	Mymonsingh „ 8, '90	Nil	Weather—cold and bright. Transplantation of *boro dhan* nearly completed. Mustard is being gathered. Prospects of crops good. Coarse rice 14 seers per rupee.
CHITTAGONG DIVN. 22	Chittagong „ 11, '90	Nil	Weather—seasonable. Prospects of chillies good.
23	Noakholly „ 8, '90	Nil	Weather—seasonable. *Rubbi* crops doing well. Price of rice stationary.
24	Tipperah „ 8, '90	Nil	Weather—bright and cool. *Boro dhan* is being transplanted. Land is being prepared for *aus*. Tobacco, onions, and chillies are thriving. Mustard is being gathered.
25	Chittagong Hill Tracts. „ 7, '90	Nil	Weather very cold with dense fogs in the morning, and hot at noon, throughout the week. Gathering of mustard continues. Tobacco, chillies and other winter crops progressing.
	Hill Tipperah Feb. 8, '90	Nil	Weather—cold. Tobacco and sugarcane being cut. Cotton gathered; outturn fair.
BEHAR.			
PATNA DIVN. 26	Patna „ 8, '90	Nil	Weather—cold. Mustard and *aghani rabar* are being harvested. Other spring crops doing well. Prospects of poppy continue favourable. Prices of food-grains almost stationary.
27	Gya „ 8, '90	Nil	Weather cold. Harvesting of paddy in course of completion. *Rubbi* coming on well. Poppy progressing.
28	Shahabad „ 8, '90	Nil	Weather bright and cold, but getting slightly warmer. Prospects of wheat and barley good. Peas and mustard being cut. Sugarcane being pressed. Poppy in flower and forward, and promises well if there be no rain. Prices stationary.
29	Durbhunga „ 8, '90	Nil	Weather—cold and clear early in the week, slightly hotter at its close. Prospects of *rabi* continue favourable. Mustard is being harvested. Recent rain has done much good to poppy crop. Prices of common rice range from 19 to 23 seers per rupee.
30	Mozufferpur „ 8, '90	Nil	Weather—seasonable. Prospects of all crops continue very favourable.
31	Sarun „ 8, '90	Nil	Weather—clear and cold. Prospects of *rubbi* excellent. Harvesting of peas and mustard commenced; outturn favourable. Poppy looks well and continues to give a good harvest.
32	Champarun „ 8, '90	Nil	Weather—seasonable. Reaping of mustard nearly finished; estimated outturn 12 annas. *Rubbi* doing well. Poppy generally in flower; prospects excellent. Prices stationary.
BHAGULPORE DIVN. 33	Monghyr „ 8, '90	Nil	Weather—seasonable. Days getting hot. Prospects of *rubbi* crops continue favourable, and an outturn of 14 annas on the whole expected. A shower of rain would still benefit the crops.
34	Bhagulpur „ 8, '90	Nil	Weather cold and dry. Crops on the whole doing well, but would be improved by rain. In Soopool, crops said to be suffering from want of rain.
35	Purneah „ 8, '90	Nil	Weather—seasonably cold. Tobacco and other cold-weather crops doing well, having been benefited by the late rain.
36	Maldah Feb. 8, '90	Nil	Weather—cold. *Kalai* and mustard still being gathered. Transplantation of *boro* going on. Prospects of other standing crops good. Common rice selling at an average of 18 seers per rupee.
37	Santhal Pergha. „ 8, '90	Nil	Weather—seasonable. *Aghani* outturn in Godda 12 annas. *Rubbi* promises to yield 12 annas for the whole district. Prices falling.

	No.	District and date of return.	Rainfall at Sadder Station in inches.	Character of the weather and state and prospects of the crops.
ORISSA.				
Orissa Dn.	38	Cuttack Feb. 8, '90	Nil	Weather—misty in the morning. The subdivisional officer of Jajpore reports that the outturn of *guru sarad* should be 16 and not 17 annas, as stated before. Prospects continue good.
	39	Pooree ...	...	Report not received.
	40	Balasore ,, 8, '90	Nil	Weather—warmer. Such *rabbi* crops as there are, doing fairly well.
CHOTA NAGPORE.				
South-West Frontier Agency.				
Chota Nagpore Dn.	41	Hazaribagh Feb. 8, '90	Nil	Weather—seasonable. Prospects generally good, except at Chatra and Chowparum, where a full crop is not expected. Rain would do good.
	42	Lohardugga ,, 8, '90	Nil	Weather—seasonable and very cold. Prospects of *rabbi* at head-quarters good. Hoar-frost has caused much damage to this crop in Palamow, especially to *rahar* pulse. Mustard is being now reaped.
	43	Singbhoom ,, 8, '90	Nil	Weather—seasonable. Prospects of crops favourable. Outturn of sugarcane 12 to 16 annas; *surguja* 10 to 16 annas; *mohua* 10 to 12 annas; other oil-seeds 10 to 16 annas. Gram doing well. Prices stationary.
	44	Manbhoom ,, 8, '90	Nil	Weather—getting warmer. Sugarcane is being pressed; outturn full average in Sudder subdivision and about 12 annas in Govindpore. *Arhar, khesari*, and wheat ripening; probable outturn 14 annas. Rice selling at from 20 to 24 seers per rupee.

Published for general information.

CALCUTTA; REVENUE DEPT.,
The 11th February, 1890.

P. NOLAN,
Secy. to the Govt. of Bengal.

PRICES-CURRENT (retail) of Food-grains, Firewood and Salt in the

QUANTITIES PER RUPEE IN

Number.	DISTRICTS.	WHEAT.			BARLEY.			RICE, BEST SORT.			RICE, COMMON.			JOWAR OR CHOLUM. (*Sorghum Vulgare.*)		
		Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.
	BENGAL.															
	Western Districts.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.
1	Burdwan	14 8	13 8	12 4	No sale.			12 12	New 15 0	15 12	New 16 14	16 5	18 0	...	...	...
2	Bankoora	14 8	14 8	12 4	14 0	14 0	14 8	17 8	17 0	17 8	21 0	21 0	21 0	..	...	...
3	Beerbhoom	15 8	15 8	11 0	...	...	...	13 8	12 0	13 0	16 8	15 0	15 12	...	...	...
4	Midnapore	13 0	13 0	13 5	...	...	...	12 8	12 8	15 0	17 0	16 8	20 0	...	...	...
5	Hooghly	13 0	13 0	13 0	...	...	..	8 0	8 0	10 0	13 0	12 0	13 0	...	...	...
	Howrah	...	...	...	...	...	...	9 8	9 8	12 0	14 0	14 0	14 8	...	...	...
	Central Districts.															
	Calcutta	13 12	13 0	12 9	18 0	16 9	15 11	9 2	8 11	9 10	13 14	13 8	14 14	20 3	19 4	17 8
6	24-Pergunnahs	15 0	14 8	12 8	16 0	16 0	14 0	9 0	9 0	8 0	16 8	16 8	16 0	...	...	...
7	Nuddea	15 0	15 0	13 14	17 12	17 12	22 14	10 10½	10 10½	12 5	12 14	13 4	17 14	...	...	...
8	Khoolna	...		...	...	...	...	13 0	14 0	14 4	16 0	16 0	16 0	...	...	...
9	Jessore	12 12	13 5	12 0	...	...	...	9 0	9 0	14 0	16 0	16 0	17 0	...	...	...
10	Moorshedabad	16 0	16 0	13 5	...	...	...	15 8	15 8	13 5	16 0	17 0	17 0	...	...	...
11	Dinagepore	16 0	17 4	12 0	19 0	16 0	12 0	14 0	15 8	14 6	19 0	19 0	17 1	...	...	...
12	Rajshahye	15 0 / 16 8	15 0	12 0	18 12	18 12	26 4	14 4	13 8	13 8	16 2	15 12	15 0	...	...	...
13	Rungpore	14 8	14 8	12 4	...	...	...	9 6	9 6	10 8	14 8	14 8	16 12	...	...	...
14	Bogra	Boat sort. 13 5 / Common. 16 8	13 5 / 16 8	7 14	...	...	...	12 0	12 0	12 0	18 12	19 8	18 12	...	...	...
15	Pubna	13 5	13 8	16 8	...	...	...	7 2	7 4	7 12	16 8	15 14	18 0	...	...	...
16	Darjeeling	10 0	10 0	10 0	10 0	10 0	10 0	5 8	5 0	5 0	10 0	12 0	13 0	...	...	...
17	Jalpigoree	13 0	13 0	10 0	16 0	16 0	16 0	8 0	8 0	8 0	17 0	17 0	18 0	...	...	...
	Eastern Districts.															
18	Dacca	13 0	13 0	15 8	16 0	16 0	20 0	14 0	14 0	16 0	16 0	16 0	17 0	...	...	...
19	Furreedpore	12 0	12 0	16 0	12 0	12 0	18 0	10 0	10 0	8 0	14 0	14 0	16 0	...	...	...
20	Backergunge	...	...	...	...	...	...	13 5	13 5	13 5	16 0	18 0	15 9	...	...	
21	Mymensingh	11 8	10 0	9 0	...	...	...	10 8	10 0	12 0	14 0	12 12	19 0	...	...	...

A In subdivisions retail prices of salt per rupee are:—Culna 10 seers, Cutwa 10 seers 6 chittacks and Ranaegunge 10 seers.
B At Rampore Haut retail price of salt 10½ seers per rupee.
C In subdivisions retail prices of salt per rupee are:—Contai 10 seers, Tumlook 8 seers, and Ghattal 10½ seers.
D In subdivisions retail prices of salt per rupee are:—Serampore 10 seers and Jehanabad 10 seers.
E In subdivisions retail prices of salt per rupee are: Baraset 9 seers, Basirhat 9 seers, Diamond Harbour (at Magrahat) 8 seers, Barrackpore 9 seers 2 chittacks, and Dum-Dum 10 seers.
F In subdivisions retail prices of salt per rupee are:—Kooshtea 10 seers, Meherpore 10½ seers, Chooadanga 9 seers, and Ranaghat 9 seers 2 chittacks.
G In subdivisions retail prices of salt per rupee are:—Satchira 9 seers and Bagirhat 8 seers.
H In subdivisions retail prices of salt per rupee are:—Jhanida 9 seers, Magura 9½ seers, Narail 9½ seers, and Bongong 10 seers.
I In subdivisions retail prices of salt per rupee are:—Lalbagh 10 seers, Jungipore 10 seers, and Kandi 11 seers.

of the Districts of Bengal on the 31st January 1890.

IRS OF 80 TOLAHS.

...JRA OR CUMBU. (*...ennisetum typhoideum.*)			MARUA OR RAGI. (*Eleusine Coracana.*)		
Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.
S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S.
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
4 15	14 0	12 6	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	18 0	13 0	14 0
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...

FIREWOOD.			SALT.			WHOLESALE PRICES PER MAUND OF 40 SEERS. SALT.			DISTRICTS.
Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	
S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
									BENGAL.
									Western Districts.
100 0	100 0	107 0	A 10 0	10 0	10 7½	3 11 0	3 12 0	3 11 0	Burdwan.
280 0	280 0	320 0	10 0	10 0	10 0	3 15 0	3 15 0	3 14 0	Bankoora.
160 0	160 0	160 0	B 10 8	10 8	20 0	3 10 0	3 10 0	3 13 0	Beerbhoom.
160 0	160 0	120 0	C 10 3	10 3	10 4	3 15 0	3 15 0	3 14 0	Midnapore.
120 0	120 0	120 0	D 9 0	9 0	9 0	3 11 6	3 11 6	4 6 0	Hooghly.
100 0	100 0	100 0	10 0	9 2	10 3	3 13 6	3 13 3	3 10 6	Howrah.
									Central Districts.
100 0	100 0	90 10	10 2	10 0	10 5	3 11 0	3 11 6	3 10 2	Calcutta.
100 0	100 0	100 0	E 10 0	10 0	10 0	3 9 6	3 9 6	3 9 6	24-Pergunnahs
...	...	...	F 9 2	9 2	9 2	3 14 0	3 14 0	3 14 0	Nuddea.
160 0	160 0	160 0	G 8 0	9 0	9 4	4 4 0	4 4 0	4 0 0	Khoolna.
160 0	160 0	160 0	H 9 3	9 2	9 2	4 0 0	4 0 0	4 0 0	Jessore.
200 0	200 0	200 0	I 11 0	10 12	10 8	3 12 0	3 12 0	3 12 0	Moorshedabad.
160 0	160 0	160 0	J 9 8	9 8	9 8	4 0 0	4 0 0	4 0 0	Dinagepore.
240 0	240 0	240 0	K 9 0	9 9	9 9	4 2 3	4 2 8	4 0 0	Rajshahye.
100 0	100 0	120 0	L 8 14	8 14	9 6	4 8 0	4 8 0	4 4 0	Rungpore.
90 0	90 0	90 0	9 0	9 0	9 0	4 4 0	4 2 8	4 2 8	Bogra.
200 0	200 0	200 0	M 8 11½	8 11½	9 9	4 0 0	4 0 0	3 15 0	Pubna.
120 0	120 0	120 0	N 8 0	7 0	7 0	5 0 0	5 0 0	5 0 0	Darjeeling.
128 0	128 0	128 0	O 9 0	9 0	9 0	4 2 0	4 2 0	4 4 0	Julpigoree
									Eastern Districts.
160 0	160 0	120 0	P 9 4	9 4	9 14	4 4 0	4 4 0	4 0 0	Dacca.
220 0	120 0	120 0	9 0	9 0	9 0	4 4 0	4 4 0	4 0 0	Furreedpore
220 0	120 0	120 0	Q 10 10	10 10	10 10	3 14 0	3 14 0	3 12 0	Backergunge.
...	...	...	R 9 4	9 0	9 10	4 2 0	4 6 0	4 2 0	Mymensingh.

...rice of salt 8 seers per rupee.
...per rupee are :—Nattore 9 seers and Nowgong 8 seers 11 chittacks.
...per rupee are :—Kurigram 9 seers, Nilphamari and Gaibanda 8 seers.
... seers per rupee.
...s. 4-4 per maund.
... retail price of salt 8 seers per rupee.
...per rupee are :—Mauickgunge 8 seers, Moonsheegunge 8 seers 14 chittacks, and Naraingunge

...per rupee are :—Patuakhali 9 seers, Perozepore 9 seers, and Bhola 8 seers.
... per rupee are :—Kishoregunge 8 seers, Jamalpore 10 seers, Sherepore 8 seers, and

PRICES-CURRENT (retail) of Food-grains, Firewood and Salt in the Head-quarter

QUANTITIES PER RUPEE IN

Number.	DISTRICTS.	WHEAT.			BARLEY.			RICE, BEST SORT.			RICE, COMMON.			JOWAR OR CHOLUM. (*Sorghum Vulgare.*)		
		Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.
	Eastern Districts—concluded.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.
22	Chittagong ...	11 0	11 0	11 0	...	...	...	11 0	11 0	12 0	15 11	15 11	16 8	.	...	...
23	Noakholly ...	...	...	...	.	...	...	16 0	16 0	16 0 Chaplash.	18 0	18 0	18 0	...	...	...
24	Tipperah ...	11 7	11 7	12 8	.			10 0 Gobindabhag.	10 0	17 0	16 0	16 0	20 0	.	..	...
25	Chittagong Hill Tracts.	...	...	..	...	..	..	12 4	10 0	11 6½	14 0	11 0	14 8½	...	...	...
	Hill Tipperah...	6 0	6 0	6 0	...	...	...	8 0	8 0	10 0	15 0	14 0	19 0	...	...	...
	BEHAR.															
26	Patna ...	17 8 Red. 15 8 White.	17 6 15 8	... 17 0	24 0	24 0	21 0	10 8	10 8	11 0	17 14	18 0	15 8	22 0	22 0	21
27	Gya ...	16 0	16 8	13 8	23 0	23 0	15 0	10 8	10 0	9 8	17 0	17 0	15 0	...	...	...
28	Shahabad ...	16 0	16 0	15 4	23 0	22 0	17 0	9 0	9 8	9 0	17 0	17 0	14 4	23 0	21 0	18 4
29	Durbhunga ...	13 3	15 6	12 0	27 8	3) 12	16 8	9 14	...	11 0	19 3	20 4	14 0	...	...	...
30	Mozufferpore	14 0	14 0	12 0	20 0	20 0	...	9 0	12 0	9 0	17 0	18 0	13 0	...	...	...
31	Sarun ...	15 8	16 0	15 0	21 0	20 0	20 8	9 4	8 8	8 8	17 6	15 8	13 5	...	...	...
32	Chumparun ...	13 0	13 0	12 0	...	...	19 0	10 0	9 0	9 0	19 0	18 8	13 0	...	...	...
33	Monghyr ...	18 10	18 10	15 8	21 0	21 0	...	16 12	13 2	14 0	19 11	16 13	17 1	...	...	...
34	Bhagulpore ...	16 6	14 11	15 2	20 8	20 8	17 10	11 6	12 0	14 13	18 5	17 10	16 13	...	...	...
35	Purneah ...	18 0	20 0	13 4	...	...	...	18 0	18 0	16 0	19 0	19 0	17 0	...	...	...
36	Maldah ...	16 0	18 0	13 0	...	...	..	8 0	12 0	13 0	17 0	17 0	16 0	...	...	...
37	Sonthal Perghs.	18 0	13 4	11 8	...	...	..	12 0	12 0	12 8	17 0	17 0	18 0	...	...	...
	ORISSA.															
38	Cuttack ...	11 13	11 13	13 2	...	...	...	10 8	10 8	11 13	22 5	19 11	18 6	...	...	...
39	Pooree ...	13 2	11 13	13 2	...	...	...	15 12	15 12	13 2	23 10	22 10	18 6	...	...	...
40	Balasore ...	15 0	15 0	13 0	13 0	13 0	13 0	13 0	13 0	12 8	19 0	19 0	19 8	...	...	...
	CHOTA NAGPORE.															
	South-West Frontier Agency.															
41	Hazaribagh ...	13 8	13 0	12 0	15 0	12 0	9 0	10 0	10 0	8 0	18 0	18 0	16 0	...	...	...
42	Lohardugga ...	13 12 Red. 11 12 White	12 8 ...	10 8 ...	...	13 0	...	17 0	17 0	13 0	20 0 Ordinary. 22 0 Coarse.	19 8 22 0	16 8 ...	...	...	...
43	Singbhoom ...	10 0	10 0	10 0	15 0	20 0	14 0	16 0	16 0	16 0	20 0	20 0	20 0	...	...	...
44	Manbhoom ...	13 5	13 5	11 14	...	...	...	14 0	15 0	14 0	20 0	22 0	21 0	...	...	...

S At Cox's Bazar retail price of salt 8 seers per rupee.
T At Fenny Hát retail price of salt 8 seers per rupee.
U In subdivisions retail prices of salt per rupee are:—Buxar 10½ seers, Sasseram 10½ seers, and Bhabuah 9½ seers.
V In subdivisions retail prices of salt per rupee are:—Tajpore 11 seers and Madhubani 10 seers.
W In subdivisions retail prices of salt per rupee are:—Hajipore 9½ seers and Sitamarhi 10 seers.
X At Bettiah retail price of salt 10 seers per rupee.

CALCUTTA,
The 11th February, 1890.

Station Bazars of the Districts of Bengal on the 31st January 1890—(concluded).

INDIAN-CORN OR MAIZE (*Zea Mays.*)			ARHAR OR THUR. CAJAN PEA. (*Cajanus indicus.*)			FIREWOOD.			SALT.			WHOLESALE PRICES PER MAUND OF 40 SEERS. SALT.			DISTRICTS.
Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	
															Eastern Districts—concluded.
S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
...	...	...	...	...	...	110 0	100 0	108 0	S 9 0	9 0	9 4	4 0 0	4 0 0	3 14 0	Chittagong.
...	...	.	7 0	7 0	...	...	...	...	T 9 0	9 0	8 0	4 0 0	4 0 0	4 8 0	Noakholly.
...	...	...	8 0½	8 0½	8 0	...	...	...	8 14	8 14	8 0	4 8 0	4 8 0	4 6 0	Tipperah.
...	...	...	...	...	...	320 0	320 0	320 0	8 0	8 0	8 0	4 8 0	4 8 0	4 8 0	Chittagong Hill Tracts.
...	...	...	8 0	8 0	8 0	...	...	...	8 0	8 0	8 0	4 6 0	4 6 0	4 6 0	Hill Tipperah.
															BEHAR.
22 8	23 0	21 0	21 8	21 0	23 0	130 0	130 0	130 0	10 0	10 0	10 0	3 14 0	3 14 0	3 12 0	Patna.
...	...	...	19 0	19 0	18 0	160 0	160 0	200 0	9 2	9 2	8 12	4 2 0	4 2 0	4 2 9	Gya.
...	...	...	19 0	20 0	14 0	140 0	140 0	160 0	U 9 12	10 0	10 0	3 15 6	3 15 0	4 0 0	Shahabad.
24 3	24 8	19 12	16 8	18 8	22 0	200 0	160 0	160 0	V 10 0	10 0	11 0	3 12 0	3 12 0	3 10 3	Durbhunga.
26 0	22 8	17 0	18 0	18 0	20 0	160 0	160 0	160 0	W 10 0	10 0	10 0	4 0 0	3 12 0	3 12 0	Mozufferpore.
21 12	21 0	20 8	19 8	19 0	20 8	160 0	160 0	160 0	9 8	9 8	10 0	4 0 0	4 2 0	3 14 6	Sarun.
24 8	24 0	17 8	17 8	17 0	22 0	160 0	160 0	160 0	X 10 0	9 8	9 0	4 1 0	4 2 0	4 2 0	Chumparun
22 1	24 2	16 13	16 12	17 13	18 5	147 0	147 0	147 0	Y 9 11	9 11	9 8	4 0 0	4 0 0	4 0 0	Monghyr.
22 11	22 11	17 2	17 11	17 11	17 10	164 0	164 0	176 8	10 1	10 1	9 0	3 15 0	3 15 6	4 0 0	Bhagulpore.
...	...	...	16 0	16 0	16 0	120 0	130 0	200 0	Z 9 0	9 8	9 0	4 7 0	4 3 4	4 5 0	Purneah.
...	...	...	...	...	...	160 0	160 0	200 0	9 0	9 0	10 0	4 4 0	4 0 0	4 0 0	Maldah.
25 0	25 0	20 0	20 0	20 0	24 0	200 0	200 0	200 0	9 0	9 0	9 0	4 0 0	4 2 0	4 3 0	Sonthal Porgha.
															ORISSA.
...	...	...	14 7	14 7	17 1	80 0	80 0	80 0	11 0	11 0	11 0	3 12 0	3 12 0	3 12 0	Cuttack.
...	...	...	15 12	14 7	15 12	80 0	80 0	80 0	Z1 11 13	11 13	11 13	3 6 0	3 6 0	3 6 0	Pooree.
...	...	...	...	...	...	160 0	160 0	160 0	Z2 10 0	10 0	9 12	3 14 0	3 14 0	3 13 6	Balasore.
															CHOTA NAGPORE.
															South-West Frontier Agency.
21 0	21 0	16 0	17 0	15 0	16 0	320 0	320 0	320 0	8 0	8 0	8 0	4 6 0	4 6 0	4 8 0	Hazaribagh.
30 0	40 0	19 0	Big. 15 0 Small. 17 0	15 4	17 0	140 0	130 0	140 0	8 8	8 4	8 8	4 6 0	4 9 0	4 8 0	Lohardugga.
24 0	32 0	...	12 0	12 0	15 0	240 0	240 0	200 0	8 8	7 0	7 0	4 12 0	5 8 0	5 8 0	Singbhoom.
32 0	32 0	23 0	20 0	19 0	17 0	00 0	200 0	200 0	Z3 9 2	9 2	9 0	4 2 6	4 2 6	4 2 0	Manbhoom.

Y In subdivisions retail prices of salt per rupee are:—Begusarai 9¼ seers and Jamui 9 seers.
Z In subdivisions retail prices of salt per rupee are:—Kishengunge 8 seers and Arrareah (at Ranigunge) 9 seers.
Z1 In Khoordah subdivision retail price of salt 10 seers per rupee.
Z2 At Bhudruck retail price of salt 8 seers per rupee.
Z3 At Govindpore retail price of salt 9 seers per rupee.

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P. NOLAN,
Secy. to the Govt. of Bengal.

PRICES-CURRENT (whol

Number.	MARTS.	WHEAT.			BARLEY.			
		Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.
		R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A
1	Calcutta ...	2 10 9	2 11 8	2 14 10	1 15 11	2 2 7	2 5 2	4
2	Serajgunge ...	2 4 0	2 0 0	2 10 0	...	...	...	5
3	Dacca ...	3 0 0	3 0 0	2 8 0	2 7 0	2 7 0	2 0 0	2 1
4	Naraingunge	...	...	...	...	...	...	3
5	Chittagong ...	3 8 0	3 8 0	3 9 0	...	...	...	3
6	Patna ...	Red. 2 4 0 / White. 2 8 0	Red. 2 4 6 / White. 2 8 0	... / 2 5 0	1 10 0	1 10 0	1 13 0	3 1
7	Balasore ...	2 8 0	2 8 0	3 0 0	3 0 0	3 0 0	3 0 0	3
8	Pooree ...	...	...	...	...	...	...	...
	Cuttack ...	3 4 0	3 4 0	3 0 0	...	...	...	3

OF 40 SEERS.

NARUA OR RAGI. (*Eleusine Coracana.*)			KANGNI OR KARUN ITALIAN MILLET. (*Setaria italica.*)		
Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.
R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.
...	...	...	2 4 4	2 4 0	2 2 6
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
1 7 0	1 7 0	...	2 0 0	2 0 0	2 9 6
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...

CALCUTTA,
The 11th February, 1890.

e undermentioned Marts of Bengal on the 31st January 1890.

M, CHANA, CHHOLA, ADALAY OR SUNAGA. (*Cicer Arietinum.*)			INDIAN-CORN OR MAIZE. (*Zea Mays.*)			ARHAR OR THUR. CAJJAN PEA. (*Cajanus indicus.*)			FIREWOOD.			SALT.			MARTS.
	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	
A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	
2 8	2 3 5	2 7 0	1 15 0	1 14 7	2 0 8	1 15 10	2 2 9	2 2 9	0 5 6	0 5 6	0 5 9	3 11 0	3 11 6	3 10 2	Calcutta.
1 0	2 8 0	3 6 0	...	...	...	...	...	...	...	...	...	4 0 0	4 0 0	3 11 0	Serajgunge.
0 0	3 0 0	3 0 0	...	...	...	2 12 0	2 12 0	2 8 0	0 4 0	0 4 0	0 5 0	4 4 0	4 4 0	4 0 0	Dacca.
2 0	3 0 0	3 0 0	...	...	...	3 4 0	3 4 0	3 2 0	0 8 0	0 8 0	0 10 0	3 12 0	4 0 0	3 12 0	Naraingunge.
0 0	3 0 0	3 4 0	...	...	...	...	...	...	0 6 0	0 7 0	0 5 3	4 0 0	4 0 0	3 14 0	Chittagong.
11 6	1 11 6	2 1 0	1 11 0	1 11 6	1 13 0	1 13 0	1 14 0	1 10 0	0 5 0	0 5 0	0 5 0	3 14 0	3 14 0	3 12 0	Patna.
12 0	2 12 0	3 0 0	...	...	...	...	...	...	0 4 6	0 4 6	0 4 6	3 14 0	3 14 0	3 13 6	Balasore.
...	...	...	...	...	...	...	...	...	...	...	...	3 6 0	3 6 0	3 6 0	Poorea.
8 0	2 12 0	2 0 0	...	...	...	2 12 0	2 12 0	2 0 0	0 8 0	0 0	0 8 0	3 12 0	3 12 0	3 12 0	Cuttack.

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P. NOLAN,
Secy. to the Govt. of Bengal.

STATEMENT SHOWING THE STOCKS OF RICE IN AND AROUND CALCUTTA.

NAMES OF MARTS.	STOCK IN HAND AS COMPILED ON—												
	1st week of Feb. 1889.	1st week of Mar. 1889.	1st week of April 1889.	1st week of May 1889.	1st week of June 1889	1st week of July 1889.	1st week of August 1889.	1st week of Sept. 1889	2nd week of Oct. 1889.	1st week of Nov. 1889.	1st week of Dec. 1889.	1st week of Jan. 1890.	1st week of Feb. 1890.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Balighatta	7,77,000	12,77,000	12,67,000	12,42,000	7,67,500	8,73,000	7,32,700	6,62,000	5,06,000	4,54,000	2,93,500	3,00,000	5,48,000
Coltadanga	71,400	80,200	87,100	82,200	88,000	86,500	78,700	74,400	71,900	67,400	55,400	63,400	83,900
Chitpore, Golabaree, Coomertooly, Hatkhola, and Culpy Ghat.	6,96,600	7,09,200	7,64,000	7,54,300	6,96,500	6,85,400	6,97,700	5,76,300	6,74,100	6,33,300	5,86,000	6,00,400	5,98,900
Pathuriaghatta, Posta, and Jorabagan.	3,500	2,000	3,200	3,000	2,500	2,000	3,000	4,000	5,000	8,000	3,000	4,000	5,000
Tallygunge, Chitlah, Kidderpore, and Moonshiganje.	1,26,600	1,37,400	1,48,100	1,59,000	1,19,700	1,03,700	1,10,700	72,500	64,550	65,200	68,100	82,750	96,100
21 Minor Bazars (estimated) ...	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000
Other retail shops, 3,129 in number (estimated).	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000
Beadyabatty, Nowabgunge, Dhuddreesar, and Chandernagore.	14,924	20,493	19,792	20,068	19,923	19,906	18,117	14,265	14,382	13,410	14,080	28,425	19,606
Total ...	21,80,024	27,15,293	27,79,193	27,50,466	21,94,123	22,60,506	21,39,917	18,93,165	18,25,932	17,31,310	15,13,080	15,68,975	18,43,506
On Railway premises on both sides of the river.	15,074 (on 4th Feb. 1889.)	6,852 (on 5th Mar. 1889.)	23,414 (on 4th April 1889.)	12,496 (on 4th May 1889.)	6,578 (on 3rd June 1889.)	7,730 (on 3rd July 1889.)	4,179 (on 3rd Aug. 1889.)	9,606 (on 3rd Sept. 1889.)	8,208 (on 3rd Oct. 1889.)	14,011 (on 3rd Nov. 1889.)	6,477 (on 3rd Dec. 1889.)	28,007 (on 3rd Jan. 1890.)	28,935 (on 3rd Feb. 1890.)
On boats unloaded ... By Port Commissioners' returns.	44,923 (1st to 3rd Feb. 1889.)	31,937 (1st to 3rd Mar. 1889.)	23,449 (1st to 3rd April 1889.)	17,963 (1st to 3rd May 1889.)	16,066 (1st to 3rd June 1889.)	25,610 (1st to 3rd July 1889.)	1,32,232 (1st to 3rd Aug. 1889.)	25,331 (1st to 3rd Sept. 1889.)	17,852 (5th to 7th Oct. 1889.)	21,324 (1st to 3rd Nov. 1889.)	20,650 (1st to 3rd Dec. 1889.)	61,641 (2nd to 4th Jan. 1890.)	68,796 (1st to 3rd Feb. 1890.)
By Canal returns	1,43,475 (1st to 3rd Feb. 1889.)	80,850 (1st to 3rd Mar. 1889.)	36,713 (1st to 3rd April 1889.)	8,972 (1st to 3rd May 1889.)	15,297 (1st to 3rd June 1889.)	27,106 (1st to 3rd July 1889.)	29,345 (1st to 3rd Aug. 1889.)	19,331 (1st to 3rd Sept. 1889.)	45,922 (5th to 7th Oct. 1889.)	14,718 (1st to 3rd Nov. 1889.)	8,835 (1st to 3rd Dec. 1889.)	1,31,815 (2nd to 4th Jan. 1890.)	2,42,044 (1st to 3rd Feb. 1890.)
Grand total of Stocks ...	23,33,496	28,34,932	28,62,768	27,89,897	22,22,064	23,20,352	22,96,673	19,48,282	18,97,914	17,81,363	15,49,242	17,90,438	21,81,281
Probable stock available for exportation by sea.	13½ lakhs	17½ lakhs	18 lakhs	17½ lakhs	11½ lakhs	12½ lakhs	12½ lakhs	9 lakhs	8½ lakhs	7½ lakhs	5 lakhs	7½ lakhs	11½ lakhs

STATISTICAL DEPARTMENT,
The 10th February, 1890.

P. NOLAN,
Secy. to the Govt. of Bengal.

Abstract of the results of Meteorological Observations taken at the Alipore Observatory in the month of January 1890.

	Inches.	Date.	Hour.
The mean pressure of the month	29·946		
The average pressure of January from 24 years' registers ...	30·014		
The highest pressure in the month	30·128	29th	10
The lowest pressure in the month	29·736	24th	16
The range of pressure	0·392		
	Hours.		
The total number of hours of bright sunshine during the month	273·7		
The maximum possible number of hours of sunshine ...	337·3		
	⊖		
The mean temperature of the month	66·3		
The average temperature of January from 24 years' registers	67·7		
The highest temperature in the month	81·7	24th.	
The lowest temperature in the month	47·6	28th.	
The range of temperature during the month	34·1		
The mean daily range of temperature	20·5		
The greatest range of temperature in one day	25·8	28th.	
	Per cent.		
The mean humidity of the month	74		
The average humidity of January from 24 years' registers ...	71		
	Inches.		
The mean vapour tension of the month	0·469		
The average vapour tension of January from 9 years' registers	0·467		
The mean cloud proportion of the month ...	0·82		
The average cloud proportion of January from 13 years' registers	1·46		
	Inches.		
The total rainfall of the month	0·77		
The total rainfall indicated by a Beckley's self-registering rain-gauge (mouth of the gauge about 52 feet above the ground)	0·76		
The average fall of January from 48 years' registers ...	0·43		
The greatest fall in 24 hours	0·77	25th.	
	Days.		
The number of rainy days in the month	1		
The average number of rainy days in January from 24 years' registers	2		
	⊖		
The mean maximum equilibrium temperature of solar radiation during the month	130·9		
The mean difference of sun and air temperatures	54·0		
The greatest sun temperature	135·5	8th.	
The greatest excess of sun over air temperature	59·0	27th and 29th.	
The mean temperature of the nocturnal radiation thermometer on woollen cloth	48·7		
The mean depression of the nocturnal radiation thermometer below the minimum air temperature at 4 feet above the ground	8·1		
The greatest depression of the nocturnal radiation thermometer below the minimum air temperature	11·4	29th.	
	Miles.		
The mean movement of the wind per day	63·4		
The greatest movement of the wind in one day	131·0	25th.	
The greatest movement of the wind in one hour	14·0	24th	10 to 11 and 11 to noon.
The number of hours with winds from each of the 8 points—			

N. 204, N.E. 44, E. 5, S.E. 4, S. 29, S.W. 130, W. 105, N.W. 114, Calm 109.

The results of observations at the Alipore Observatory are not rigorously comparable with the registers of past years (at the Park Street Observatory). The barometer is about 8 feet higher at Alipore, and, other things being equal, reads therefore ·003 lower. The diurnal range of temperature is also greater at Alipore, and the mean temperature apparently about 2·5° lower; and finally, the thermometer which furnished the record of temperature at the Surveyor-General's Office during 20 years and upwards is found to read 0·6 higher than the Kew standard thermometer, which is the standard of reference at the present Observatory.

C. LITTLE,
For Meteorological Reporter to the Govt. of India.

METEOROLOGICAL OFFICE, INDIA;
Calcutta, the 7th February 1890.

Meteorological Report of the Province o

Meteorological Division.	District.	Representative stations.	Station Observations.															
			Air Pressure.					Temperature.						Humidity.		Cloud.		
			Highest, 8 A.M., barometer reading of month.	Lowest, 8 A.M., barometer reading of month.	Mean, 8 A.M., for month.	Mean, reduced to sea-level.	Variation from normal mean.	Highest of month.	Lowest of month.	Mean daily maximum temperature	Mean daily minimum temperature.	Mean daily temperature.	Variation from normal mean.	Mean, 8 A.M., humidity.	Variation from normal mean.	Mean cloud amount, 8 A.M.	Variation from normal mean, 8 A.M.	Rainfall.
Orissa.	Pooree	Pooree	30·089	29·859	30·029*	30·042*	—	?	52·5	?	59·5	?	—	82	—	0·5	—	0·1(
		Gopalpore	30·091	29·844	29·990	30·032	—·015	84·2	55·0	80·2	62·5	71·3	+0·6	72	—	0·1	—	Nil
		False Point	30·090	29·844	29·991	30·013	—·079	85·9	50 0	79 1	57·8	68·4	—0·5	87	—3	0·8	—1·6	0·1(
	Cuttack	Cuttack	30·045	29·795	29·948	30·034	—·052	88 9	50·9	83·5	58·5	71·0	—1·3	73	—5	1 2	—0·3	Nil
	Balasore	Balasore	30·072	29·809	29·970	30·032	—·064	86·4	46·9	80·4	54·9	67·7	+0·1	82*	—	0·1	—	Nil
South-West Bengal.	South-West Midnapore and South 24-Pergunnahs.	Saugor Island	30 088	29 843	29·989	30·016	—·071	81·7	51·7	70·0	60·4	65·2	+0 3	90	+2	0·6	—1·7	Nil
	Midnapore	Midnapore	29·964	29·705	29·866	30·025	—·081	87·3	46·1	81·2	55·3	68·3	+1·8	73	—	0 4	—	Nil
	24-Pergunnahs, Howrah, and Hooghly.	Calcutta	30·092	29·845	29·993	30·015	—·079	81·5	47 8	76·9	56·4	66 7	+0·6	87	+3	0·6	—1·3	0·77
	Burdwan	Burdwan	30·020	29·713	29·908	30·015	—·089	85·5	46·7	80·0	55·9	68·0	+1·6	75	0	0·4	—1·2	0·18
	Bankoora	Bankoora	29·787	29·519	29 691	30·013	—·077	80·0	46·2	79·1	54·9	67·0	+1·1	76	—	0·2	—	0·00
	West Burdwan and Beerbhoom.	Ranigunge	29·803	29·503	29·682	30·035	—·075	85·5	46 7	79 6	55·2	67 4	+1·5	74	—	0·4	—	0·07
	Moorshedabad	Berhampore	30·050	29 773	29·938	30·009	—·090	81·6	47·1	77 2	55·2	66 2	+1·2	92	+12	0·7	—1·0	0·12
	Nuddea	Krishnagore	30 076	29·824	29·967	30 037	—·057	84 5	47·8	78 7	54·0	66 3	+2·0	86	—	0·8	—	Nil
	Jessore and Khoolna	Jessore	30·074	29·811	29·969	30·004	—·081	81·7	48·4	78·1	57·3	67·7	+2·1	93	+10	1·4	—0·7	1·55
East Bengal.	Chittagong	Chittagong	30·007	29·813	29·911	30·006	—·079	81·1	50·2	78·6	57·0	68·3	+1 8	90	+2	1·7	+0·1	0·70
	Chittagong Hill Tracts	Demagri						Observations not received.										
		Barrisal	30·071	29·888	29·989	30·002	—·067	79 3	48·1	76·9	57·6	67·3	+2 8	99	—	0 6	—	3·04
	Backergunge	Noakholly	30·072	29·838	29·965*	30·008*	—	81·3	46·0	78·1	55 2	66·7	—	89	—	0·2	—	0·40
	Noakholly	Furreedpore	30 064	29 849	29·970	30 012	—·062	74·7	49 0	73 4	56 5	64 9	+1·1	94	—	0·8	—	0·21
	Furreedpore	Dacca	30·057	29·853	29 965	29 993	—·090	81·1	48 2	78·5	56·6	67·6	+1·1	89	+7	1 2	—0·4	1·30
	Dacca	Commillah	30·071	29·844	29 977	30·014	—·059	80 9	48·1	78·1*	56 2	67 2*	+2 5	87	—	0·6	—	0·74
	Tipperah	Mymensingh	30·053	29·836	29 947	30·008	—·069	77·9	48 8	75·1‡	57 4	66 5‡	+3·2	92	—	1·8	—	1·63
	Mymensingh	Bogra	30 011	29·852	29·920	29·957	—·073	80·8	45·5	76·5	54 1	65 3	+0·1	89	—	0·3	—	0·79
North Bengal.	Bogra	Pubna	30·045	29·930	29·949	29 998	—·080	81·4	37·9	77·1	53 5	65·3	+2·0	94	—	0·7	—	0·25
	Pubna	Serajgunge	30 037	29·781	29·931	30·005	—·066	80·1	44·9	76·0	54 6	65 6	+3 4	86	—	0·2	—	0·03
	Rajshahye	Rampore Beauleah.	30·044	29·820	29·939	30·026	—	80·0	42·0	77·5	52·3	64·9	—	84	—	0·5	—	Nil
	Maldah	Maldah	29 994	29·781	29·890†	30·0 1†	—·073	80·1	47 9	76 3	52·5	64 5	+1·8	87	—	1·3	—	0·60
	Dinagepore	Dinagepore	30·010	29 787	29 896	30·010	—·067	80 0	41·2	76·1	52·4	64·3	+2·9	91	—	0·5	—	0 51
	Rungpore	Rungpore	29·827	29·623	29·721	30 026	—·069	?	44·0	?	53·9	?	?	91*	—	1·0	—	0·19
	Julpigoree and Cooch Behar.	Julpigoree																
	Darjeeling Hill Tracts	Darjeeling	23·031	22·797	22 935	—	—	53 9	29·1	53·4*	35·7	44·5*	+5·0	83	+9	5·7	+0·6	1·10
North Behar.	Purneah and North Bhagulpore.	Purneah	30·015	29·750	29 882	30·017	—·079	77 7	40·5	74·3	49·9	62·1	+0·8	92	+7	0·7	—0·7	0·02
	Mozufferpore	Mozufferpore						Observations discontinued.										
	Durbhunga	Durbhunga	29·982	29·700	29·852	30·031	—·075	78·9	45·8	75 5	54·2	64·8	+2·8	86	+3	0·8	—0·4	0·23
	Chumparun	Motiharı	29·919	29·652	29·788	30·033	—·054	77·2§	41·0	73·8§	49 3	61·4§	+1·9	87	—	1·2	—	1·07
	Sarun	Chupra	29·939	29·693	29 821	30 028	—·052	78·3	43·1	75 9	52·1	64·4	+3·7	83	—	0 7	—	Nil
South Behar.	Shahabad	Dehree	29·781	29·515	29 671	30 051	—·064	81·8	44 0	77·1	52 3	64 7	+3·5	75	—	0·4	—	Nil
		Buxar	29 911	29·634	29 7·2	3 1 012	—·065	81 4	41 9	75 9	50 5	63·3	+1 8	75	—	0·9	—	0·03
		Arrah	29·950	29·671	29 8.91	30 0391	—·043	80 2	41·9	76·0	50 2	63·1	+2·7	82	—	1·5	—	Nil
	Gya	Gya	29·744	29·460	29·638	30·042	—·070	82 6	47·9	77·1	52·8	65·0	+1·5	74	+9	0·9	—1·3	Nil
	Patna	Bankipore	29·971	29·699	29·847	30·037	—·080	78·9	43·3	75·2	52·2	63 7	+2·6	78	—1	0·8	—1·3	0 03
	South Bhagulpore and Monghyr.	Bhagulpore	29·966	29 0 6	29·813	30 015	—·070	79·1	42·5	76·2	52 1	64·1	+2·3	84	—	0·6	—	Nil
	Sonthal Pergunnahs	Naya Doomka	29·598	29·320	29·464	30·027	—	80·9	42·4	77·1	53 4	64·7	—	79	—	0·1	—	0·02
Chutia Nagpur.	Hazaribagh	Hazaribagh	28·049	27·788	27·932	30·150	—·061	80·7	42·0	74·1	51·6	62·8	+1·2	59	—1	0·4	—1·5	Nil
	Lohardugga, Manbhoom	Ranchee	27·912	27·670	27·820	30·040	—·066	82·0	37·0	74·4	49·7	62 0	+0·7	65	—	0·3	—	0·01
	Singbhoom	Chyebassa	29·356	29·092	29·215*	30·050*	—	85·8	44·0	80·2	52·1	66·1	—	69	—	0·2	—	Nil
Assam	Assam	Sibsagar	29·844	29·626	29 741	30·090	—·035	73·6	42·2	69·8	52·6	61·2	+1·4	99	+8	7·7	+2·2	2·88
		Dhubri	29 904	29·779	29 807	30·023	—·084	79 3	50·6	73 4	55·6	64·5	+1·0	91	0	2·2	+0 3	0·94
		Silchar	30·000	29·795	29·911	30·023	—·069	83·8	48·5	78 0	55·8	67 3	+2·8	91	+2	4·6	+1·1	1·45

* Means of 30 days.
† „ 28 „
‡ „ 29 „
§ „ 21 „

gal for the month of January 1890.

DISTRICT OBSERVATIONS.												
RAINFALL.												
Of month.					Since 15th May 1889.					Representative stations.	DISTRICT.	METEOROLOGICAL DIVISION.
trict.	Normal mean.	Variation from mean.	Number of rainy days.	Normal mean number of rainy days.	Mean of district.	Normal mean.	Variation.	Mean number of rainy days.	Normal mean number of rainy days.			
0·07	0·81	−0·24	0·8	1·0	74·95	55·63	+19·32	96 8	83·3	Pooree ... } Gopalpore ... } False Point ... }	Pooree	Orissa.
0·15	0·36	−0·21	0·5	1 0	66·39	51·98	+14·41	93·4	79·7	Cuttack ...	Cuttack	
0·07	0·44	−0·37	0·2	1·0	49·96	53·31	−3·35	81·3	77·2	Balasore ..	Balasore	
0·14	0·43	−0·29	0·7	1·1	58·57	62 37	−3·80	100 2	85·7	Saugor Island ..	South-West Midnapore and South 24-Pergunnahs.	South-West Bengal.
0·10	0·50	−0·40	0·7	1 2	46 39	51·57	−5·18	86·1	72·3	Midnapore ...	Midnapore	
0·73	0·50	+0·22	1·0	1·3	54·10	51·66	+2·44	92·1	90·3	Calcutta ...	24-Pergunnahs, Howrah, and Hooghly.	
0·06	0·39	−0·33	0·7	1·1	43·89	46·71	−2 82	81 2	75 9	Burdwan ...	Burdwan	
0·05	0·41	−0·36	0·5	1·3	55·03	52·28	+3·05	82·0	82·5	Bankoora ...	Bankoora	
0·02	0·45	−0·43	0·5	1·5	52·46	51·02	+0·84	85·0	83·9	Ranigunge ...	West Burdwan and Beerbhoom.	
0 02	0·45	−0·43	0·2	1·2	51·17	50·55	+0 62	82·1	79·2	Berhampore ...	Moorshedabad	
0·12	0·35	−0 23	0·8	1·1	51·61	49·14	+2·47	88·0	78 2	Krishnagore ..	Nuddea	
1·36	0·50	+0 86	1·4	1·3	54·75	53 22	+1·53	97·0	84·0	Jessore ...	Jessore and Khoolna ...	
0 33	0·70	−0·37	0·5	1·3	100·35	113 78	−13·43	111·5	107·9	Chittagong ...	Chittagong	East Bengal.
0·04	0·07	−0·03	0·5	1·4	65·17	81·60	−16·43	98·5	114·1	Demagri ...	Chittagong Hill Tracts	
0 59	0 71	−0·12	2·0	1·3	78·41	77·01	+1·40	103·9	105·8	Barrisal ...	Backergunge	
0·53	0 70	−0·17	3·0	1·6	90 82	107 11	−16·29	113·5	108·1	Noakholly ..	Noakholly	
1·90	0·45	+1·45	2·0	1·3	62·22	55·72	+6·50	85·2	86·8	Furreedpore ..	Furreedpore	
1·60	0·42	−1·18	2·0	1·5	76 19	59·60	+16·59	107 0	91·3	Dacca ...	Dacca	
1·17	0·65	+0·52	2·0	1·5	56·62	69·31	−12·69	95 1	96·7	Commillah ...	Tipperah	
1 15	0·38	+0·77	1·8	1·2	68·78	67 31	+1 47	107 0	89·0	Mymensingh ...	Mymensingh	
0·80	0·37	+0·43	2·0	1·1	65·61	57·23	+8·38	103 7	77 8	Bogra ...	Bogra	North Bengal.
0·30	0·40	−0·10	1·5	1·4	55·37	53·35	+2·02	103·5	81·3	Serajgunge ...	Pubna	
0·05	0·50	−0·45	0·7	1·0	54·35	55·88	+0·47	90·3	77·1	Rampore Beauleah.	Rajshahye	
Nil	0·47	−0·47	0·0	1·6	39·76	54·22	−14·16	73 5	63·8	Maldah ...	Maldah	
0·12	0·38	−0·26	0 6	1·3	57·49	57·40	+0·09	83·5	78·2	Dinagepore ...	Dinagepore	
0·71	0·48	+0·23	2·3	0·9	85·87	73 81	+12·04	87 7	76 5	Rungpore ...	Rungpore	
0·60	0·46	+0·14	2·4	1·3	117·73	111·25	+6·48	105·4	97·1	Julpigoree ...	Julpigoree and Cooch Behar.	
0·70	0·88	−0·18	4 8	2·7	133·45	121·37	+12·08	127 6	113·7	Darjeeling ...	Darjeeling Hill Tracts.	
0·29	0·50	−0·21	0·6	1·2	75 00	58 08	+16·32	75·6	70·1	Purneah ...	Purneah and North Bhagulpore.	North Behar.
0·17	0·66	−0·49	1·3	1·7	48·83	43 54	+5·29	71·1	57·9	Mozufferpore ...	Mozufferpore	
0 27	0·64	−0 37	1·3	1·4	52·11	44·72	+7 39	67·0	57·9	Durbhunga ...	Durbhunga	
0·41	0·67	−0·26	1·5	1·4	63·06	46·79	+17·17	69 0	54·2	Motihari ...	Chumparun	
Nil	0·67	−0·67	0·0	1·7	40·13	42·98	−2·85	58·4	57 8	Chupra ...	Sarun	
Nil	0·69	−0·69	0·0	2·0	40·07	40·08	−0 01	68·4	61 1	Dehree ... } Buxar ... } Arrah ... }	Shahabad	South Behar.
Nil	0·65	−0·65	0·0	2·0	37·07	41·62	−4·55	63 8	57·8	Gya ...	Gya	
Nil	0·57	−0·57	0·0	1·8	43·49	41·32	+2·17	62·9	62·3	Bankipore ...	Patna	
Nil	0·5	−0 56	0·0	1·7	42·43	43·17	−0·74	69·4	66·3	Bhagulpore ...	South Bhagulpore and Monghyr.	
Nil	0·37	−0·37	0·0	1·1	54·15	50·70	+3·36	83·1	75·9	Naya Doomka...	Sonthal Pergunnahs ...	
Nil	0·60	−0·60	0·0	1·6	43·03	50·46	−7·43	85·8	81·2	Hazaribagh ...	Hazaribagh	Chutia Nagpur.
Nil	0·84	−0 84	0·0	2·5	44·34	49·13	−4·79	82·1	80·3	Ranchee ...	Lohardugga, ...	
0·03	0·48	−0·45	0·6	1·6	38·36	46·92	−8·56	97·1	84 0		Manbhoom	
Nil	0·73	−0·73	0·0	1·8	48·70	51·58	−2·82	100·0	92·3	Chyebassa ...	Singbhoom	
.....	.....	... ..	.....	.....	.....	.....	.....	.....	.....	Sibsagar... ...	Assam ...	Assam.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dhubri		
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Silchar		

Table of Rainfall recorded at Station

Meteorological division.	District.	Station.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Pooree	Pooree	...	...	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Khurdah	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Banpur	...	.	..				...	...	...	...	...	...	...	...	..	...	...	...	...	...
		False Point	...	...	...	...	...	.	...	..	...	...	...	...	...	..	...	...	...	...	...	...
		Gop	...	...	...	..	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...
		Pipli																				
	Cuttack	Jaxatsingpore	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Banki	.	...	...	...	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Cuttack	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Kendrapara	..	.	.	...	.	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...
		Jajpore	...	...	...	...	.	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
		Dharmsalla	...	..	...	...	..		..	..	...	...	...	...	...	...	.	...	...	...	...	...
		Salipore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Balasore	Chandbali	...	...	...	...	...	...	...	...	...	...	...	...	..	..	...	...	...	...	...	...
		Bhuddruck	...	...	...	..	..	...	...	...	...	...	..	...	...	...	...	...	...	...	...	..
		Soorah	..	...	..	...		...	..	...	...	...	..	...	...	...	...	...	...	...	...	...
		Balasore	...		...	...	...	...	...	...	...	...	...	...	...	...	..	..	...	...	...	...
		Jellasore	...	...	...	..	..	.	...	...	..	...	...	...	...	...	...	...	...	...	...	...
		Baripodah	...	...	...	.	...	...	...	..	..	...	...	...	...	...	...	...	...	...	...	...
SOUTH WEST BENGAL.	Midnapore	Contai	...	..	.	...	...		...	..	...	...	...	...	...	...	...	...	...	...	...	...
		Saugor Island	...	...	...	.	...	...	...	..	..	...	...	...	...	...	..	...	...	...	...	...
		Tumlook	..	...	..	...	...	...	...	..	..	...	...	...	...	...	.	..	...	...	...	...
		Midnapore	...	..	..	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
		Ghatal	...	...	.		.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
		Kukrahaty	.	...	.	.	..	..	..	...	.	...	...	...	...	...	...	...	...	...	..	...
		Bhagwanpore	...	..	..	...	...	.		..	...	...	...	...	...	...	.	...	...	...	...	...
		Garbeta	..	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	...
	24-Pergunnahs	Diamond Harbour.	...	...	...	..	...	...	...	...	..	...	...	...	...	...	..	...	...	...	...	...
		Canning Town	...	..	..	...	..	...		...	..	...	...	...	...	...	...	...	...	...	...	...
		Alipore Jail	.	...	..	...	...	.	..	...	...	..	...	...	...	...	...	...	...	...	...	..
		Barrackpore	.	...	..	.	..	..	...	...	...	..	..	...	...	...	...	...	...	...	...	..
		Dum-Dum	.	...	...	.		...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
		Barasat	..	...	...	.	..	...	...	.	.	...	...	...	...	...	..	...	...	...	...	...
		Gunnerhat	...	...	...	...	...	...	...	.	.	...	...	...	...	...	...	...	...	...	...	..
	Howrah	Howrah	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...
		Mohesreka (*Oolooberiah*).	...	...	...	...	...	.	...			...	...	...	...	...	...		...	...	...	...
	Hooghly	Serampore	...	...	...	...	..	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...
		Hooghly	...	...	..	.		..	...	..	...	.	...	...	...	...	...	...	...	...	...	..
		Johnabad	...	.	...	...	..	...				.										
	Burdwan	Culna	.	...	...	...	...	...	..	.	..	...	...	...	...	...	...	...	...	...	...	0·1
		Burdwan	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Cutwa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Ranegunge	.	...	...	...	..	...	...	...	...	..	...	...	...	...	...	...	...	...	...	0·0
		Mankur	...	..	...	...	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Bankoora	Bankoora	...	..	...	...	...	...	...	..	...	...	...	...	..	...	...	...	...	...	...	..
		Bishenpore	...	..	..	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
		Maliara	..	...	..	...	.	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...
		Khatra	...	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Indas	...	...	..		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Kotalpore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Anda	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Gangajalghati	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Raipore	..	...	..		...	..	...	..	...	...	...	...	...	...	...	...	...	...	...	..
		Sonamukhi	...	...	..	...	.	.	...	..	...	...	...	...	...	...	...	...	...	...	...	..
	Beerbhoom	Bh. Soory	...	...	..	...	...	...	...	...	..	...	...	...	...	...	...	..	...	...	...	..
		Hetampore	..	...	.	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
		Rampore Haut	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Bolpur	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
		Murarai	...	...	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	..
	Nuddea	Ranaghat	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
		Kishnaghur	...	...	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Chooadanga	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Meherpore	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Koushten	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Khoolna	Satkhira	...	...	...	...	..	...	...	...	...	...	...	..	...	...	...	...	...	...	...	..
		Bagirhat	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Khoolna	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Nakipur	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	..
		Rampal	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	..
	Jessore	Narail	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Jessore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Jhenidah	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·0
		Magoorah	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Bongong	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Moorshedabad	Kandi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0
		Berhampore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Lalbagh	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Azimgunge	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Jungipore	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Lalgola	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Jungunga	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Akhriganj	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	0·10	
		Patkabari	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
EAST BENGAL	Chittagong	Cox's Pavar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Chittagong	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Kutubdia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Satkanya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·08	
	Chittagong Hill Tracts.	Rangamati	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
		Ruma	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	

Bengal in January 1890.

23	25	24	25	26	27	28	29	30	31	Number of rainy days.	Average number of rainy days.	Total rainfall for the month.	Average rainfall for the month.	Heaviest rainfall during the month.	Total rainfall from 1st January 1890 up to 31st Jan. 1890.	Average rainfall from 1st January up to 31st January.	Station.	District.	Meteorological division.
...	...	...	0·08	...	...	...	...	...	...	1	0·8	0·08	0·26	0·08	0·08	0·26	Pooree ...	Pooree ...	
...	...	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·27	Nil	Nil	0·27	Khurdah.		
...	...	...	...	...	...	...	...	...	...	Nil	0·5	Nil	0·08	Nil	Nil	0·08	Banpur.		
...	...	...	...	...	...	...	...	...	...	2	1·3	0·20	0·58	0·15	0·20	0·58	False Point.		
...	...	0·05	0·15	...	...	...	...	...	...	Nil	?	Nil	?	Nil		?	*Gop.*		
...	...	...	...	...	...	...	...	...	...		?		?			?	*Pipli.*		
			0·52	...	...	...	...	...	...	1	0·7	0·52	0·35	0·52	0·52	0·35	Jagatsingpore.	Cuttack.	
...	...	...	...	...	...	...	...	...	...	Nil	1·4	Nil	0·22	Nil	Nil	0·22	Banki.		
...	...	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·40	Nil	Nil	0·40	Cuttack.		
...	...	...	0·21	...	...	...	...	...	...	1	0·7	0·21	0·44	0·21	0·21	0·44	Kendrapara.		
...	...	...	...	...	...	...	...	...	...	Nil	0·8	Nil	0·43	Nil	Nil	0·43	Jajpore.		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Dharmsala.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Salipore.*		
...	...	...	0·40	...	...	...	...	...	...	1	0·8	0·40	0·48	0·40	0·40	0·48	Chandbali ...	Balasore.	
...	...	...	...	...	...	...	...	...	...	Nil	0·8	Nil	0·39	Nil	Nil	0·39	Bhuddruck.		
...	...	...	...	...	...	...	...	...	...	Nil	0·8	Nil	0·25	Nil	Nil	0·25	Sorah.		
...	...	...	...	...	...	...	...	...	...	Nil	0·9	Nil	0·73	Nil	Nil	0·73	Balasore.		
...	...	...	...	...	...	...	...	...	...	Nil	1·1	Nil	0·72	Nil	Nil	0·72	Jellasore.		
...	...	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·26	Nil	Nil	0·26	Baripodah.		
...	...	...	0·05	...	...	...	...	...	...	1	0·8	0·05	0·31	0·05	0·05	0·31	Contai ...	Midnapore ...	SOUTH-WEST BENGAL.
...	...	...	..	...	...	...	...	...	...	Nil	1·1	Nil	0·34	Nil	Nil	0·34	Saugor Island.		
...	...	...	0·20	...	...	...	...	...	...	1	0·8	0·20	0·38	0·20	0·20	0·38	Tumlook.		
...	...	...	...	...	...	...	...	...	...	Nil	1·4	Nil	0·72	Nil	Nil	0·72	Midnapore.		
...	...	...	0·11	...	...	...	...	...	...	1	1·4	0·11	0·51	0·11	0·11	0·51	Ghatal.		
...	...	...	0·19	...	...	...	...	...	...	1	?	0·19	?	0·19	0·19	?	*Kukrahaty.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Bhagwanpore.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	0·60	Nil	Nil	0·60	*Garbeta.*		
			0·38	...	...	...	...	...	...	1	1·4	0·38	0·05	0·38	0·38	0·05	Diamond Harbour.	24-Pergunnahs	
...	...	...	...	...	...	...	...	...	...	1	?	0·05	?	0·05	0·05	?	*Canning Town.*		
			0·05	...	...	...	...	...	...	1	1·4	1·07	0·71	1·07	1·07	0·71	Alipore Jail.		
...	...	...	1·07	...	...	...	...	...	...	1	1·2	0·33	0·45	0·33	0·33	0·45	Barrackpore.		
...	...	...	0·33	...	...	...	...	...	...	1	1·3	0·85	0·52	0·85	0·85	0·52	Dum-Dum.		
...	...	...	0·85	...	...	...	...	...	...	1	1·2	1·10	0·59	1·10	1·10	0·59	Baraset.		
...	...	...	1·10	...	...	...	...	...	...	1	0·9	1·49	0·42	1·49	1·49	0·42	Buseerhat.		
...	...	...	1·49	...	...	...	...	...	...										
			0·52	...					...	1	2·0	0·52	0·59	0·52	0·52	0·59	Howrah ...	Howrah.	
...	...	...	0·10						...	1	0·8	0·40	0·5.	0·40	0·10	0·51	Mohesreka (*Oolooberiah*).		
			0·35	...	...		...	..		1	1·5	0·36	0·42	0·36	0·36	0·42	Serampore ...	Hooghly	
...	...	...	0 6·	...	...		...	...		1	1·2	0·61	0·45	0·61	0·61	0·45	Hooghly.		
..	...	...	0 45	..	...	...	...	...		1	1·3	0·45	0 39	0·45	0·15	0·39	Johanabad.		
...	...	...		...		...	...	...	...	Nil	0·9	Nil	0·46	Nil	Nil	0·46	Culna ...	Burdwan	
										2	1·3	0·18	0 34	0·12	0·18	0 34	Burdwan.		
...	...	...	0·09	...	...				..	Nil	1·1	Nil	0 45	Nil	Nil	0·45	Cutwa.		
...	...	...		..	..		...			2	1·4	0 07	0·33	0·05	0·07	0·33	Kanegunge.		
...	...	...	0·02	...	...	...	...	...	...	1	?	0·09	?	0·09	0·09	?	*Mankur.*		
			...	...	...	..	...	...	...	1	1·4	0·07	0·37	0·07	0·07	0·37	Bankoora ...	Bankoora	
			0 07	...	...	...	...	...	...	Nil	1·3	Nil	0·38	Nil	Nil	0·38	Bishonpore.		
...	...	...	...	..	..	...	...	...	...	1	0·9	0·11	0·35	0·11	0·11	0 33	Malara.		
...	...	0·11	...	..	..	...	...	...	...	Nil	1·6	Nil	0·41	Nil	Nil	0·44	Khatra.		
...	...	...	...	...	..	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	Indas.		
...	...	...	...	.	..	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	Kotalpore.		
...	...	...	..	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	Anda.		
...	...	...	..	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	Gangajalghati.		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	0·36	Nil	Nil	0 36	*Kaipore.*		
...	...	...	0·11	...	...	...	...	...	...	1	?	0·11	?	0·11	0·11	?	*Sonamukhi.*		
...	...	...	...	...	...	...	...	...	...	Nil	1·9	Nil	0·46	Nil	Nil	0·46	Bh. Soory ...	Beerbhoom.	
...	...	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0 51	Nil	Nil	0·51	Hetampore.		
...	...	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·53	Nil	Nil	0·53	Rampore Haut		
...	...	...	...	...	...	...	...	...	...	1	?	0·07	?	0·07	0·07	?	*Bolpur.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Murarai.*		
			0·30	...	...	...	...	..	..	1	0·7	0·30	0·46	0·30	0·30	0·46	Ranaghat ...	Nuddea	
...	...	...	...	...	...	...	...	...	...	Nil	1·1	Nil	0·42	Nil	Nil	0·42	Kishnaghur.		
...	...	...	...	...	...	...	...	...	...	1	1·2	0·05	0·31	0·05	0·05	0·31	Choondanga.		
...	...	...	...	...	...	...	...	...	...	1	0·9	0·10	0·31	0 10	0·10	0·31	Meherpore.		
...	...	...	...	...	...	...	...	...	...	1	1·4	0·15	0·38	0·15	0·15	0·38	Koushtea.		
			2·03	...	...	...	...	...	...	1	1·3	2·03	0·40	2·03	2·03	0·40	Satkhira ..	Khoolna	
			0·08	...	...	...	...	...	...	2	1·0	1·48	0·69	0·98	1·48	0·69	Bagirhat.		
			0·79	...	...	...	...	...	...	2	1·5	1·04	0·60	0·70	1·04	0·60	Khoolna.		
			...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Nakipur.*		
			0·37	...	...	...	...	...	...	1	?	0·37	?	0·37	0·37	?	*Rampal.*		
			2·51	...	...	...	...	...	...	2	1·5	2·54	0·68	2·51	2·54	0 68	Narail ...	Jessore.	
			1·55	...	...	...	...	...	...	1	1·0	1·55	0·51	1·55	1·55	0·51	Jessore.		
			..	...	...	...	...	...	...	1	1·.	0·18	0·34	0·18	0·18	0·34	Jhenidah.		
			0·17	...	...	...	...	...	...	2	1·1	0·42	0·31	0·25	0·42	0 31	Magoorah.		
			1·03	...	...	...	...	...	...	1	0·7	1·03	0·33	1·03	1·03	0·33	Bongong.		
			...	...	...	...	...	...	...	Nil	1·1	Nil	0·42	Nil	Nil	0·42	Kandi ...	Moorshedabad	
			...	...	...	...	...	...	...	1	1·5	0·12	0·44	0·12	0·12	0·44	Berhampore.		
			...	...	...	...	...	...	...	Nil	0·7	Nil	0·50	Nil	Nil	0·50	Lalbagh.		
			...	...	...	...	...	...	...	Nil	1·4	Nil	0·56	Nil	Nil	0·56	Azimgunge.		
			...	...	...	...	...	...	...	Nil	1·5	Nil	0·44	N	Nil	0·44	Jungipore.		
			...	...	...	...	...	...	...	Nil	1·2	Nil	0·61	Nil	Nil	0·61	Lalgola.		
			...	...	...	...	...	...	...	1	?	0·04	?	0·04	0·04	?	Jaigunge.		
			...	...	...	...	...	...	...	1	?	0·25	?	0·25	0·25	?	*Akhriganj.*		
			...	...	...	...	...	...	...	1	?	0·10	?	0·10	0·10	?	*Patkabari.*		
			...	...	...	...	...	...	...	Nil	1·3	Nil	0·77	Nil	Nil	0·77	Cox's Bazar ...	Chittagong ...	EAST BENGAL.
			...	0·66	...	...	...	...	...	1	1·3	0·66	0·51	0·66	0·66	0·51	Chittagong.		
			...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Kutubdia.*		
			...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Satkanya.*		
			...	...	...	...	...	...	...	1	1·6	0·08	0·58	0·08	0·08	0·56	Rangamati ...	Chittagong Hill Tracts.	
			...	...	...	...	...	...	...	Nil	1·1	Nil	0·68	Nil	Nil	0·68	Runa.		

Table of Rainfall recorded at Stations

Orological division.	District.	Station.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
ST BENGAL —*concld.*	Backergunge...	Patuakhally ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Perozepore ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·65
		Burrisal ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·09
		Bhola ...	...	..	...	...	...	...	...	...	...	..	..	...	...	...	...	...	...	...	...	0·25
		Gournaidi ...	...	..	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Bauphal ...	...	...	..	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
	Noakholly ...	Noakholly ...	...	.	...	...	...	...	...	...	...	...	...	...	..	...	..	...	...	...	...	0·19
		Fenny ...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	0·15
		Harishpore ..	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	..
		Ramganj ...	...	.	..	...	..	...	...	..	..	...	..	...	...	...	...	...	...	...	...	...
	Furreedpore ..	Madaripore ...	...	...	...	...	...	...	...	..	...	.	...	...	...	...	...	...	...	...	...	0·69
		Furreedpore .		...	..	...	...	...	.	...	...	...	..	...	...	...	...	...	...	...	1·80	...
		Goalundo ...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	1·55	...
	Dacca ..	Munshigunge	...	...	..	..	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	0·6
		Dacca ..	...	..	...	...	...	...	...		...	...	..	...	...	...	...	...	...	...	...	0·2
		Narainguuge	...	...	..	..	...	...	...	...	...	..	...	..	...	...	...	...	...	...	...	0·1
		Manickgunge	...	...	...	...	..	...	...	...	...	..	...	..	...	...	...	...	...	...	...	0·5
		Joydebpore ...		..	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	1·1
	Hill Tipperah	Agartola ...	...	...	...	.	...	...	..	..	...	...	...	...	...	.	...	...	...	...	...	0·1
	Tipperah ...	Comilla ...	...	...	..	...	..	...	...	..	..	..	...	...	...	...	...	...	...	...	...	0·4
		Chandpore ...	...	...	...	...	...	...	...	.	..	..	...	...	...	...	...	...	...	...	...	0·5
		Brahmunberia	...	...	...	...	...	...	...	.	..	...	...	..	...	...	...	..	...	...	...	1·1
		Ramchandra-pore.	..	..	..	..	...	...	...	...	..	...	..	...	...	...	...	...	...	...	...	0·2
		Nasirnagar ...	...	...	..	...	...	...	...	..	..	...	..	-	...	...	...	...	...	...	...	0·3
		Daudkandi ...	..	...	...	...	...	...	...	...	...	...	..	..	...	...	...	...	...	...	...	0·7
		Kasba ...	.	.	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	
		Laksham ...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	0·3
	Mymensingh .	Kishoregunge	...	...	...	...	...	...	..	...	..	...	...	..	...	...	...	...	...	...	...	..
		Atia (*Tangail*)	...	...	...	...	...	...	...	..	..	...	...	...	...	...	...	...	...	...	..	0·8
		Mymensingh	...	..	...	...	...	...	...	.	..	..	..	..	...	...	...	...	...	...	..	1·1
		Jamalpore ...	...	...	...	...	...	...	...	.	..	...	..	..	...	...	...	...	...	...	...	0·3
		Netrokona ...	...	...	...	...	.	...	.	.	...	...	..	..	...	...	.	...	...	...	...	0·2
		Subornakhally	...	...	...	...	...	...	...	..	...	...	..	..	...	...	...	...	...	...	...	..
		Durgapore ...	...	...	...	...	...	...	...	..	...	4	...	.	..	..	...	...	...	...	...	..
		Sherpore Town	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·3
		Dewanganj ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·1
ORTH BENGAL	Pubna ...	Pubna ...	..	...	...	...	...	...	.	...	...	..	...	...	..	...	...	...	...	...	..	0·7
		Serajgunge .	...	..	...	...	...	.	...	..	.	...	...	...	...	..	...	...	...	...	...	0·6
	Bogra ..	Sherpore ...	.	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...
		Nowkhilla ...	...	.	...	...	...	..	...	...	..	..	...	.	..	..	...	...	...	...	...	1·1
		Bogra ...	...	...	...	...	...	...	...	...	...	...	...	..	..	..	...	...	...	...	...	0·2
		Panchbibi ...	...	...	..	...	.	...	...	...	..	...	...	..	.	...	...	...	...	...	...	0·2
	Rajshahye ...	Beanleah ...	...	...	...	...	...	...	...	...	..	...	...	...	...	..	...	..	...	...	...	0·1
		Nattore ...	...	...	...	...	..	...	...	.	...	..	..	...	..	...	...	...	...	...	...	.
		Naogaon ...	...	...	...	...	...	...	...	..	...	..	..	...	...	...	...	...	...	...	...	..
		Lalpore ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	..
		Manda ...	...	...	...	..	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...
	Maldah ...	Maldah ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
		Chanchal ...	...	...	...	...	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...	..
		Gajol ...	...	...	...	..	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	..
		Sibganj ...	...	...	...	..	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	..
	Dinagepore ...	Mohadebpore	...	...	...	...	...	..	...	...	.	...	...	...	...	...	...	...	...	...	...	..
		Churamon ...	...	...	.	..	...	...	...	.	...	...	...	..	...	..	...	...	...	...	...	..
		Rangunge ...	...	...	...	...	..	...	...	...	...	...	...	..	...	...	...	...	...	...	...	..
		Dinagepore ...	...	...	...	...	...	..	...	...	...	..	...	...	...	...	...	...	...	...	...	..
		Baloorghat ...	...	...	...	...	...	.	.	...	...	...	...	..	...	...	...	...	...	...	...	..
		Thakurgaon...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
	Rungpore ..	Bhawanigunge (*Gyabanda*).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·
		Rungpore ...	...	...	...	...	...	0·09	...	...	...	...	...	...	...	...	...	...	...	...	...	0·
		Kurigram ...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
		Bagdogra .. (*Nilphamari*).	...	...	...	...	...	..	...	..	...	..	...	.	..	...	...	...	...	...	...	..
		Ulipore ...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	..
	Julpigoree ...	Julpigoree ...	...	...	...	..	...	..	0·05	...	...	...	...	...	...	...	...	..	...	...	...	..
		Alipore Doar	...	...	...	...	..	...	...	0·20	..	...	...	...	...	..	...	...	...	...	...	..
		Falacotta ...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·
		Debiganj ...	...	...	...	...	...	...	...	..	...	..	...	...	...	...	...	...	...	...	...	0·
		Bhogolpore (*Nagrakatta*).	..	...	...	...	...	0·12	0·22	0·08	...	...	...	..	...	...	...	...	...	...	0·06	0·
	Cooch Behar...	Dinhatta ...	...	..	..	...	...	0·19	..	...	...	...	..	...	...	...	...	...	...	...	...	0·
		Cooch Behar...	...	...	..	..	...	...	0·05	...	...	...	...	..	...	...	...	...	...	...	...	.
		Mickligunge...	..	...	...	...	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	.
		Matabhanga...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
	Darjeeling Hill	Buxa ...	..	...	...	...	...	...	0·10	0·41	...	...	..	0·20	0·05	0·15	...	...	...	0·03	0·27	.
		Siliguri ...	...	...	...	...	...	..	...	0·03	...	...	...	...	...	..	...	...	...	...	...	0·
		Darjeeling ...	...	...	...	...	...	...	...	0·07	0·13	...	...	...	...	...	...	...	...	...	...	0·
		Kalimpong ...	...	...	...	...	...	...	..	0·16	...	...	...	...	...	...	...	...	...	...	...	0·
		Kurseong ...	...	..	...	...	...	...	0·12	0·16	0·15	...	...	...	...	...	...	...	...	...	0·70	.
NORTH BEHAR	Purneah ..	Kissengunge	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	.
		Arrareah ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
		Purneah ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
		Gondwara ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
		Balarampore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
		Matiari ...	...	...	..	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	.
		Kaliaganj ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
	North Bhagulpore.	Maddapore ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
		Soopool ...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
		Protabganj ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.

Bengal in January 1890—*continued.*

22	23	24	25	26	27	28	29	30	31	Number of rainy days.	Average number of rainy days.	Total rainfall for the month.	Average rainfall for the month.	Heaviest rainfall during the month.	Total rainfall from 1st January 1890 up to 31st Jan. 1890.	Average rainfall from 1st January up to 31st January.	Station.	District.	Meteorological division.
...	...	...	0·46	...	...	...	...	...	...	1	1·5	0·46	0·77	0·46	0·46	0·77	Patuakhally	Backergunge.	EAST BENGAL—*concld.*
...	...	...	0·43	...	...	...	...	...	...	2	1·1	0·48	0·71	0·43	0·48	0·71	Perozepore.		
...	...	...	0·50	...	...	...	...	...	...	2	1·4	0·59	0·69	0·50	0·59	0·69	Burrisal.		
...	...	...	0·41	...	...	...	...	...	...	3	1·3	0·83	0·59	0·41	0·83	0·59	Bhola.		
17	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Gournaddi.*		
...	...	...	0·23	...	...	...	...	...	...	1	?	0·23	?	0·23	0·23	?	*Bauphal.*		
...	...	...	0·12	0·02	...	...	...	...	...	4	1·0	0·41	0·54	0·19	0·41	0·55	Nonkholly ...	Nonkholly.	
08	...	...	0·20	...	...	...	...	...	...	2	1·5	0·65	0·70	0·15	0·65	0·79	Feuny.		
...	...	...	0·36	...	...	...	...	...	...	1	?	0·36	?	0·36	0·36	?	*Harishpore.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Ramganj.*		
...	...	...	1·13	...	...	...	...	...	...	3	1·3	2·12	0·61	1·13	2·12	0·61	Madaripore .	Furreedpore.	
30	...	...	...	...	...	...	...	...	...	1	1·4	1·80	0·34	1·80	1·80	0·34	Furreedpore.		
...	...	...	...	...	...	...	...	...	...	2	1·2	1·76	0·40	1·55	1·76	0·40	Goalundo.		
...	...	...	0·21	...	...	...	...	...	...										
...	...	...	0·58	...	...	...	...	...	...	2	1·6	1·18	0·54	0·60	1·18	0·54	Munshigunge.	Dacca.	
...	...	...	2·54	...	...	...	...	...	...	2	1·3	2·76	0·30	2·54	2·76	0·30	Dacca.		
...	...	...	0·34	...	...	...	...	...	...	2	1·2	0·78	0·39	0·44	0·78	0·39	Naraingunge.		
...	...	...	1·17	...	...	...	...	...	...	2	1·6	1·68	0·14	1·17	1·68	0·44	Manickgunge		
...	...	...	0·78	...	...	...	...	...	...	2	?	1·94	?	1·46	1·94	?	*Joydebpore.*		
...	...	...	0·12	...	...	...	...	...	...	2	1·4	0·30	0·83	0·18	0·30	0·83	Agartola ..	Hill Tipperah.	
...	...	...	0·35	...	...	...	...	...	...	2	2·1	0·80	0·60	0·15	0·80	0·60	Comilla .	Tipperah.	
...	...	...	0·6	...	...	...	...	...	...	2	1·1	1·15	0·53	0·60	1·15	0·53	Chandpore.		
...	...	...	1·25	...	...	...	...	...	...	2	1·6	2·44	0·77	1·25	2·14	0·77	Brahmunberia.		
...	...	...	0·30	...	...	...	...	...	...	2	?	0·68	?	0·39	0·68	?	*Ramchandra-pore.*		
...	...	...	1·50	...	...	...	...	...	...	2	?	1·80	?	1·50	1·80	?	*Nasirnagar.*		
...	...	...	0·72	...	...	...	...	...	...	2	?	1·44	?	0·72	1·44	?	*Daudkandi.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Kasba.*		
...	...	...	0·09	...	...	...	...	...	...	2	?	0·39	?	0·30	0·39	?	*Laksham.*		
...	...	...	1·24	...	...	...	...	...	...	1	1·0	1·24	0·57	1·24	1·24	0·57	Kishoregunge	Mymensingh.	
...	...	...	0·85	...	...	...	...	...	...	2	1·2	1·69	0·39	0·85	1·69	0·39	Atia (*Tangail*).		
...	...	...	0·22	...	...	...	...	...	...	2	1·3	1·38	0·35	1·16	1·38	0·35	Mymensingh.		
...	...	...	0·3	...	...	...	...	...	...	2	0·9	0·87	0·43	0·53	0·87	0·4	Jamalpore.		
...	...	...	0·35	...	...	...	...	...	...	2	1·1	0·55	0·19	0·35	0·55	0·19	Netrokona.		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Subarnakhally.*		
...	...	...	...	...	...	...	...	...	...	1	?	0·30	?	0·30	0·30	?	*Durgapore*		
...	...	0·30	...	...	...	...	...	...	...	3	?	1·08	?	0·44	1·08	?	*Sherepore Town*		
...	...	0·54	0·44	...	...	...	...	...	...	3	?	0·77	?	0·41	0·77	?	*Dewangunj.*		
...	...	0·20	0·41	...	...	...	...	...	...										
...	...	...	...	...	...	...	...	...	...	1	1·4	0·33	0·39	0·33	0·33	0·33	Pubna ...	Pubna ...	NORTH BENGAL
...	...	...	0·17	...	...	...	...	...	...	2	1·3	0·25	0·45	0·17	0·25	0·45	Serajgunge.		
...	...	...	0·01	...	...	...	...	...	...	1	1·2	0·01	0·35	0·01	0·01	0·35	Sherpore .	Bogra.	
...	...	...	0·14	...	...	...	...	...	...	2	1·4	1·48	0·36	1·14	1·48	0·36	Nowkhilla.		
...	...	...	0·50	...	...	...	...	...	...	2	0·9	0·70	0·43	0·50	0·70	0·43	Bogra.		
...	...	...	0·02	0·70	...	...	...	...	...	3	0·8	1·02	0·32	0·70	1·02	0·32	Panchbibi.		
...	...	...	...	...	...	...	...	...	...	1	1·0	0·14	0·29	0·14	0·14	0·29	Beauleah ..	Rajshahye.	
...	...	...	...	...	...	...	...	...	...	Nil	0·9	Nil	0·09	Nil	Nil	0·09	Nattore.		
...	...	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·03	Nil	Nil	0·06	*Naogaon.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Lalpore.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Manda.*		
...	...	...	...	...	...	...	...	...	...	Nil	1·4	Nil	0·64	Nil	Nil	0·64	Maldah ..	Maldah.	
...	...	...	...	...	...	...	...	...	...	Nil	1·7	Nil	0·51	Nil	Nil	0·51	Chanchal.		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Gajol.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Sibganj.*		
...	...	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·52	Nil	Nil	0·52	Mohadebpore .	Dinagep re.	
...	...	...	...	...	...	...	...	...	...	Nil	1·0	Nil	0·37	Nil	Nil	0·37	Churamon.		
...	...	...	0·12	...	...	...	...	...	...	1	1·6	0·12	0·37	0·12	0·12	0·37	Raigange.		
...	...	...	0·49	...	...	...	...	...	...	1	1·0	0·49	0·28	0·49	0·49	0·28	Dinagepore.		
...	...	...	...	...	...	...	...	...	...	1	1·4	0·01	0·55	0·01	0·01	0·05	Balcorghat		
...	...	...	0·01	...	...	...	...	...	...	1	?	0·34	?	0·34	0·34	?	*Thakurgaon.*		
...	...	...	0·34	...	...	...	...	...	...										
...	...	...	0·02	0·64	...	...	...	...	...	3	0·8	0·84	0·34	0·64	0·84	0·34	Bhawanikunge (*Gyabanda*),	Rungpore.	
...	...	...	0·2	0·20	...	...	...	...	...	4	0·9	0·57	0·44	0·20	0·57	0·44	Rungpore.		
...	...	...	0·05	...	...	...	...	...	...	1	0·9	0·65	0·51	0·65	0·65	0·51	Kurigram.		
...	...	...	0·80	...	...	...	...	...	...	1	0·8	0·80	0·50	0·80	0·80	0·50	Bagdogra. (*Nilphamari*,)		
...	...	...	0·10	...	...	...	...	...	...	1	?	0·10	?	0·10	0·10	?	*Ulipore.*		
...	...	...	0·13	...	...	...	...	...	...	2	1·5	0·18	0·54	0·13	0·18	0·54	Julpigoree ...	Julpigoree.	
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Alipore Doar.*		
...	...	...	0·0	...	...	...	...	...	...	3	?	0·80	?	0·50	0·80	?	*Falacotta.*		
...	...	...	0·81	...	...	...	...	...	...	2	?	1·02	?	0·81	1·02	?	*Debiganj.*		
...	...	...	...	...	...	...	...	...	...	5	?	0·71	?	0·23	0·71	?	*Bhagotpore* (*Nagrakatta.*)		
...	...	...	0·44	0·16	...	...	...	...	...	4	1·0	0·83	0·54	0·44	0·83	0·54	Dinhatta		
...	...	...	0·80	...	...	...	...	...	...	2	1·2	0·55	0·43	0·50	0·55	0·43	Cooch Behar...	Cooch Behar.	
...	...	...	1·00	0·03	...	...	...	...	...	2	0·9	1·03	0·27	1·00	1·03	0·27	Mickligunge.		
...	...	0·37	0·03	...	...	...	...	...	...	2	1·6	0·40	0·34	0·37	0·40	0·34	Matabhanga.		
...	...	...	...	0·03	0·04	...	...	...	...	9	3·5	1·28	1·12	0·41	1·28	1·12	Buxa ...	Darjeeling.	
...	...	...	0·02	0·24	...	...	...	...	...	4	1·7	0·31	0·82	0·24	0·31	0·82	Siliguri.		
...	...	...	...	...	...	...	...	...	...	3	2·8	0·40	0·69	1·24	0·40	0·69	Darjeeling.		
...	...	...	...	0·43	...	...	...	...	...	3	2·9	0·79	1·24	0·43	0·79	1·24	Kalimpong.		
...	...	0·05	0·60	...	...	...	...	...	...	6	?	1·98	?	0·70	1·98	?	Kurseong.		
...	...	...	1·30	...	...	...	...	...	...	1	1·3	1·30	0·62	1·30	1·30	0·62	Kissengunge ...	Purneah .	NORTH BEN
...	...	...	0·14	...	...	...	...	...	...	1	0·9	0·14	0·51	0·14	0·14	0·51	Arrareah.		
...	...	...	0·02	...	...	...	...	...	...	1	1·5	0·02	0·47	0·02	0·02	0·47	Purneah.		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Gondwara.*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Balarampore*		
...	...	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Matiari.*		
...	...	...	0·20	...	...	...	...	...	...	1	?	0·20	?	0·20	0·20	?	*Kaliaganj.*		
...	...	...	...	...	...	...	...	...	...	Nil	1·4	Nil	0·47	Nil	Nil	0·47	Maddapore ..	North Bhaugal-pore	
...	...	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·47	Nil	Nil	0·47	Soopool.		
...	...	...	0·31	...	...	...	...	...	...	1	?	0·31	?	0·31	0·31	?	*Protabganj.*		

Table of Rainfall recorded at Stations in

eorological ivision.	District.	Station.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
TH BEHAR *concld.*	Durbhunga ...	Tajpore ...	..	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Durbhunga ...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Madhubani ...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	..	...	...	...	...
		Bahera ...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
		Roshera ...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Mozufferpore	Sitamarhi ...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Mozufferpore	...	...	..	..	..	...	...	...	...	...	...	...	...	...	...	..	...	...	...	..
		Hajipore ...	..	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Paru ...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Mahua ...	...	...	..	...	...	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...
		Sinhar ...	..	...	...	...	...	...	...	...	...	...	..	...	...	...	...	..	...	...	...	...
		Pupri ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...
	Chumparun ...	Motihari ...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Bettiah ...	...	...	...	...	...	...	...	...	...		...	...	...	...	...	...	...	...	...	...
		Bagaha ...	...	...	...	...	...	...	...	...	...	...	...	. .	...	...	...	...	...	...	...	...
		Burhurwa ...	..	.	...	...	..	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...
	Sarun ..	Gopalgunge ..	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...
		Sewan ...	..	...	...	..	...	...	..	...	...	...	...	..	...	...	..	...	...	...	...	...
		Chupra ...	..	.	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...
TH BEHAR	Shahabad ...	Buxar ...	...	..	...	..	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	..
		Dehree ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Bhuboosh ...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Sasseram ...	.	..	...	..	...	..	..	...	...	...	...	...	...	...	.	...	...	...	...	...
		Arrah ...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	..	...	...	...	...	...
		Mohaniah ...	...	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Gya ..	Aurungabad...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	.	...	...	...	...	...
		Gya ...	...	..	...	...	...	...	...	...	.	...	...	...	...	...	.	..	...	...	...	...
		Nowadah ...	...	..	...	...	...	...	.	...	.	...	...	...	...	...	...	...	..	...	...	...
		Jehanabad ...	...	...	...	...	...	...	..	...	...	..	...	...	...	...	...	...	...	...	...	...
		Arwal ...	.	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Daudnagar ...	...	...		...	..	...	...	..	...	...	...	...	...	...	...	...	...	...	...	..
		Sheerghati ..		...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
		Rajauli ...	...	.	.	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Pakri Barawan.		..	...	...	..	...	...	...	..	..	...	...	...	...	...	...	...	...	...	...
	Patna ..	Patna ...	.	..	.	.	...	...	..	...	..	...	...	...	...	...	...	...	..	...	...	...
		Dinapore ...	..	...	...	.	.	.	..	...	...	..	..	...	...	...	..	...	...	...	...	...
		Behar ...		...	...	...	...		.	...	...	...	...	...	.	...		...	...	...	...	...
		Barrh ...	..	.	..	...	..	.	...	...	...	...	...	...	..	...	...	...	...	...	...	...
		Bickram ...		...			...	..	...	...	...	...	...	...	..	...	...	..	..	...	...	...
		Hilsa ...	...	...		..	...	..	.	...	...	...	...	...	..	...	...	.	..	...	...	...
	Monghyr ...	Begoosserai ...	..	..	...	...	.	.	...	.	..	...	...	...	...	...	...	...	...	...	...	...
		Monghyr ...	...	..	...	...	...	...	...	...	...	..	...	...	...	...	...	..	...	...	...	...
		Jamui ...	..	.	...	...	...	.	...		...	.	.	...	...	...	...	..	...	...	...	...
		Gogri ..	...	..	.	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
		Sheikpura ...	.	...	.	...	...	.	..	...	...	...	...	...	...	...	...	...	...	...	...	...
	South Bhagulpore.	Bhagulpore ...	...	.	.		.	...	..	...	..	...	...	...	...	...	...	...	...	...	...	...
		Banka ...	..	..	...	.	...	.	.	.	..	...	...	...	...	...	...	...	..	...	...	...
		Kolgong ...	...	...	.	...	...	.	...	.	...	.	...	...	...	...	...	...	...	...	...	...
		Bangaon ...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Southal Pergunnahs.	Rajmehal ...	...	...	...	..	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...
		Godda ..	.	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Pakour ..	...	..	...	..	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	0·02
		Nya Doomka	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Deoghur ...	...	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Jamtara ...	...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...
		Mohagama ...	..	..	...	...	..	..	..	...	..	...	...	...	...	...	...	...	...	...	...	...
		Nanihat ...	...	..	...	...	...	...	...													
UTIA NAGPUR.	Hazaribagh ...	Pachamba (*Giridi*).	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	...	...
		Hazaribagh ...	.	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Semtagurah ..	.	...	.	.	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Mahudi Hills	...	.	...	...	.	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
		Jhoomrah Hills	...	...	..	...	...	.	..	...	...	...	...	...	...	...	...	...	...	..	...	...
		Barhi ...	...	..	..	...	..	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...
		Chatra ...	...	...	...	...	..	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...
		Karagdeha ...	...	...	..	...	.	..	.	...	...	...	...	...	...	...	...	...	...	..	...	...
		Ramghar ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
	Lohardugga...	Lohardugga ...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Ranchi ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Palamow ...		.	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Silli ...	.	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Balumat ...	...	...	...	..	..	...	..	..	...	...	...	...	...	...	...	...	...	...	...	...
		Hoseinabad...		..	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Garwah ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Singbhoom ...	Chyebassa ...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Chakradharpore.	...	...	...	..	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
		Ghatsila ...	...	...	..	...	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Baharagura...	...	...	..	...	..	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...
	Manbhoom ..	Purulia ...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...
		Gobindpore ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Raghunathpore.	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Barrabhoom...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
		Jhalda ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		Chas ..	...	..	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

l for the month of January 1890 —*concluded.*

23	24	25	26	27	28	29	30	31	Number of rainy days.	Average number of rainy days.	Total rainfall for the month.	Average rainfall for the month.	Heaviest rainfall during the month.	Total rainfall from 1st January 1890 up to 31st Jan. 1890.	Average rainfall from 1st January up to 31st January.	Station.	District.	Meteorological division.
.....	...	0·13	...	...	...	...	...	...	1	1·4	0·13	0·64	0·13	0·13	0·64	Tajpore ...	Durbhunga ...	North Behar —*concld.*
.....	...	0·23	...	...	...	...	...	...	1	1·4	0·23	0·52	0·23	0·23	0·52	Durbhunga.		
.....	...	0·41	0·04	...	...	...	...	...	2	1·4	0·45	0·74	0·41	0·45	0·74	Madhubani.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Bahera.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Rosheru.*		
.....	...	0·33	0·06	...	...	...	...	...	2	1·2	0·39	0·53	0·33	0·39	0·53	Sitamarhi ...	Mozufferpore.	
.....	...	...	0·06	...	...	...	...	...	1	1·7	0·06	0·89	0·06	0·06	0·89	Mozufferpore.		
.....	...	...	0·05	...	...	...	...	...	1	2·1	0·05	0·65	0·05	0·05	0·65	Hajipore.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Parn.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Mahua.*		
.....	...	0·30	0·10	...	...	...	...	...	2	?	0·49	?	0·30	0·49	?	*Sikhar.*		
.....	0·24	0·30	...	...	...	...	...	...	2	?	0·54	?	0·30	0·54	?	*Pupri.*		
.....	...	0·54	...	...	...	...	...	...	1	1·6	0·54	0·47	0·54	0·54	0·17	Motihari ...	Chumparun.	
.....	...	0·21	0·06	...	...	...	...	...	2	1·2	0·28	0·69	0·22	0·28	0·09	Bettiah.		
.....	...	0·37	...	...	...	...	...	...	1	?	0·37	?	0·37	0·37	?	*Bagaha.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Burhurwa.*		
.....	...	...	...	...	...	...	...	...	Nil	1·6	Nil	0·77	Nil	Nil	0·77	Gopalgunge ..	Sarun.	
.....	...	...	...	...	...	...	...	...	Nil	2·2	Nil	0·75	Nil	Nil	0·75	Sewan.		
.....	...	...	...	...	...	...	...	...	Nil	1·7	Nil	0·71	Nil	Nil	0·71	Chuprah.		
.....	...	...	...	...	...	...	...	...	Nil	2·2	Nil	0·79	Nil	Nil	0·79	Buxar ...	Shahabad ...	South Behar.
.....	...	...	...	...	...	...	...	...	Nil	2·5	Nil	0·62	Nil	Nil	0·62	Dehree.		
.....	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·68	Nil	Nil	0·68	Bhuboosh.		
.....	...	...	...	...	...	...	...	...	Nil	1·8	Nil	0·50	Nil	Nil	0·50	Sasseram.		
.....	...	...	...	...	...	...	...	...	Nil	2·2	Nil	0·83	Nil	Nil	0·83	Arrah.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Mohaniah.*		
.....	...	...	...	...	...	...	...	...	Nil	1·8	Nil	0·61	Nil	Nil	0·61	Aurungabad ..	Gya.	
.....	...	...	...	...	...	...	...	...	Nil	2·4	Nil	0·73	Nil	Nil	0·73	Gya.		
.....	...	...	...	...	...	...	...	...	Nil	1·6	Nil	0·70	Nil	Nil	0·70	Nowadah.		
.....	...	...	...	...	...	...	...	...	Nil	2·1	Nil	0·72	Nil	Nil	0·72	Jehanabad.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Arwal.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Daudnagar.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Sheerghati.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Rajauli.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Pakri Barawan.*		
.....	...	...	...	...	...	...	...	...	Nil	2·4	Nil	0·69	Nil	Nil	0·69	Patna ...	Patna.	
.....	...	...	...	...	...	...	...	...	Nil	1·5	Nil	0·29	Nil	Nil	0·65	Dinapore.		
.....	...	...	...	...	...	...	...	...	Nil	2·0	Nil	0·67	Nil	Nil	0·67	Behar.		
.....	...	...	...	...	...	...	...	...	Nil	1·4	Nil	0·47	Nil	Nil	0·47	Barrh.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Bickram.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Hilsa.*		
.....	...	...	...	...	...	...	...	...	Nil	1·4	Nil	0·36	Nil	Nil	0·66	Begooserai ...	Monghyr.	
.....	...	...	...	...	...	...	...	...	Nil	1·9	Nil	0·45	Nil	Nil	0·45	Monghyr.		
.....	...	...	...	...	...	...	...	...	Nil	1·6	Nil	0·71	Nil	Nil	0·71	Jamui.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Gogri.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Sheikpura.*		
.....	...	...	...	...	...	...	...	...	Nil	1·9	Nil	0·50	Nil	Nil	0·50	Bhagulpore ...	South Bhagulpore.	
.....	...	...	...	...	...	...	...	...	Nil	1·7	Nil	0·59	Nil	Nil	0·59	Banka.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Kolgong.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Bangaon.*		
.....	...	...	...	...	...	...	...	...	Nil	0·8	Nil	0·19	Nil	Nil	0·19	Rajmehal ...	Sonthal Pergunnahs.	
.....	...	...	...	...	...	...	...	...	Nil	1·1	Nil	0·35	Nil	Nil	0·35	Godda.		
.....	...	...	...	...	...	...	...	...	Nil	0·9	Nil	0·30	Nil	Nil	0·30	Pakour.		
.....	...	...	...	...	...	...	...	...	1	1·7	0·02	0·55	0·02	0·02	0·55	Nya Doomka.		
.....	...	...	...	...	...	...	...	...	Nil	1·5	Nil	0·43	Nil	Nil	0·43	Deoghur.		
.....	...	...	...	...	...	...	...	...	Nil	0·9	Nil	0·45	Nil	Nil	0·45	Jamtara.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Mohagama.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Nanihat.*		
.....	...	...	...	...	...	...	...	...	Nil	1·5	Nil	0·39	Nil	Nil	0·39	Pachamba ... (*Giridi*).	Hazaribagh ...	Chutia Nagpur.
.....	...	...	...	...	...	...	...	...	Nil	2·3	Nil	0·55	Nil	Nil	0·55	Hazaribagh.		
.....	...	...	...	...	...	...	...	...	Nil	1·4	Nil	0·51	Nil	Nil	0·51	Semtagurah.		
.....	...	...	...	...	...	...	...	...	Nil	1·5	Nil	0·83	Nil	Nil	0·83	Mahudi Hills.		
.....	...	...	...	...	...	...	...	...	Nil	1·3	Nil	0·49	Nil	Nil	0·49	Jhoomrah Hills		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Barki.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Chatra.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Karaguleha.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Ramghar.*		
.....	...	...	...	...	...	...	...	...	Nil	3·3	Nil	0·84	Nil	Nil	0·84	Lohardugga ...	Lohardugga.	
.....	...	...	...	...	...	...	...	...	Nil	1·9	Nil	0·79	Nil	Nil	0·79	Ranchi.		
.....	...	...	...	...	...	...	...	...	Nil	2·0	Nil	0·77	Nil	Nil	0·77	Palamow.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Silli.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Balumat.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Hoseinabad.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Garwah.*		
.....	...	...	...	...	...	...	...	...	Nil	1·8	Nil	0·73	Nil	Nil	0·73	Chyebassa ...	Singbhoom.	
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Chakradharpore.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Ghatsila.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Baharagura.*		
.....	...	0·00	...	...	...	...	...	...	1	1·8	0·06	0·42	0·06	0·06	0·42	Purulia ...	Manbhoom.	
.....	...	...	...	...	...	...	...	...	Nil	1·4	Nil	0·51	Nil	Nil	0·51	Gobindpore.		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Raghunathpore.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Barrabhoom.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Jhalda.*		
.....	...	...	...	...	...	...	...	...	Nil	?	Nil	?	Nil	Nil	?	*Chas.*		

SUMMARY OF THE METEOROLOGICAL AND RAINFALL OBSERVATIONS TAKEN IN BENGAL, AND OF THE METEOROLOGICAL OBSERVATIONS TAKEN IN ASSAM, DURING THE MONTH OF JANUARY 1890.

THE normal meteorology of January in Bengal is very similar to that of the two previous cold-weather months, except that usually the cold weather conditions are more strongly developed in this month than in any other part of this season. Fairly strong northerly winds with practically cloudless skies, and with low temperature and humidity, rather high pressure, and an almost complete absence of rain obtain for the greater part of the month, unless these normal conditions are disturbed and almost reversed by the formation or appearance of barometric depressions over Northern India, which subsequently drift in a southerly or south-easterly direction through Central India and the North-West Provinces into Chutia Nagpur, Behar and Bengal. These disturbances give moist southerly and south-easterly winds to Bengal with heavily clouded skies and damp rainy weather, the day temperature remaining low, but the night temperature increasing largely. The heaviness of the rainfall brought up by these depressions varies considerably, but the rainfall is usually largest in Behar.

Practically the whole of the rainfall in January is brought about by these disturbances, and the amount is usually small, averaging from about a third of an inch in Orissa up to nearly two thirds of an inch in North Behar and Chutia Nagpur.

Meteorology of the month.—The chief features in the meteorology of January 1890 have been—

1. Pressure has been rather largely below the normal over the whole province, the defect usually ranging from six to eight-hundredths of an inch, and being comparatively small in the south of Orissa and largest in Western and Central Bengal.

2. The average temperatures for the month have been in excess of the normal in all districts, the excess being comparatively small in Orissa, where it is only about half a degree, while in the other districts and in Assam it varies from about one and-a-half to two and-a-half degrees.

3. Humidity has been above the normal by small amounts at almost all stations.

4. Cloud-proportion has been below the normal at almost all stations in Bengal and considerably above it in Assam.

5. The number of barometric depressions from Northern India which have passed through Bengal during January have been small, and all except one have been of such feeble nature as to scarcely call for any record. A very slight disturbance passed apparently along the line of the hills to the north of the province, giving a few showers of rain in and near the hills on the 7th and 8th of January. A second, and also a very feeble, disturbance passed through South-West and East Bengal on the 19th and 20th of January, giving rather numerous showers in these two districts and a few showers in North Bengal. The third barometric depression which occurred near the end of the month was decidedly influential and of very much greater importance than the other two. It was first formed or was first noticed in North-Western India on the 22nd, and then travelled in a south-easterly direction, reaching Bengal on the 24th and 25th of January, and on the 26th it had advanced over Burma, giving heavy rain in its advance; and from this storm moderate rain was received in all districts except parts of North Bengal and North Behar, and except the whole of South Behar and Chutia Nagpur.

6. By these actions rainfall has been fairly abundant and considerably above the normal amount in East Bengal, of about the normal amount in South-West Bengal and North Bengal, and decidedly deficient in North Behar. In Orissa the falls have been so small that rain may be said to have been practically absent, while in South Behar and Chutia Nagpur the rainfall has been entirely absent.

The weather conditions for the month therefore call for few explanatory remarks, for, except during the three brief periods mentioned in the fifth of the above clauses, weather has been generally of typical north-east monsoon character. Skies have therefore been generally almost cloudless during the greater part of the month, and rainfall has been entirely confined to a few showers during the periods of disturbance above mentioned. Owing to the comparative absence of rain and of the usual cold-weather storms in Upper India, temperature has been above the normal, and the northerly winds have been at certain times rather unsteady; the average humidity has also been rather high, owing perhaps to the fact that at one period of the month rather moist southerly winds set in for some days. During the last period of disturbance, and to a much smaller extent in the two smaller disturbances, the normal conditions became partially reversed, and skies clouded over, while the night temperatures rose very considerably.

Pressure—Was at the commencement of the month decidedly below the normal, and the average defect for about the first twenty days was from about five to eight-hundredths of an inch. With the depression which then passed through the province, this defect increased, and on the 24th and 25th pressure became from about a fifth to a quarter of an inch below the normal over a considerable part of the province. With the disappearance of the depression pressure rose rapidly, and by about the 27th and 28th of the month it had become very high, but before the close again it had commenced to fall. The average pressure for the whole month has therefore been decidedly in defect, the usual defect equalling about six to eight-hundredths of an inch. On the whole, the distribution of this defect of pressure has been fairly equal, but, if anything, the defects have been largest in the centre of the province, and least in such districts as Orissa, North Behar, and in parts of Assam such as at Sibsagor, &c.

Temperature—Continued generally decidedly above the normal up till the last week in January, when, under the influence of the rainfall in the plains, and with a moderate fall of snow along the Himalayas, a wave of cold northerly winds set in over the province, causing a very sudden reduction of temperature. So rapid was the fall that at many stations a decrease of 5,° and in some cases of even 9° and 10,° in the mean temperature of the day occurred on the 26th, and from this date to the end of the month very cool weather obtained. For the whole month consequently temperature was above the normal, the mean excess in Bengal equalling 1·8°. In Assam the excess temperature has been almost the same, and it there equals 1·7°.

The actual oscillations and variations of the temperature for the month from the normal are best shown in the following table, where the variations from the normal of the average maximum, minimum and mean temperatures at nine typical stations in different districts of the province are given week by week :—

Stations.	Week ending 10th January 1890.			Week ending 17th January 1890.			Week ending 24th January 1890.			Week ending 31st January 1890.		
	Variation of actual mean maximum temperature of week from normal mean.	Variation of actual mean minimum temperature of week from normal mean.	Variation of actual mean daily temperature of week from normal mean.	Variation of actual mean maximum temperature of week from normal mean.	Variation of actual mean minimum temperature of week from normal mean.	Variation of actual mean daily temperature of week from normal mean.	Variation of actual mean maximum temperature of week from normal mean.	Variation of actual mean minimum temperature of week from normal mean.	Variation of actual mean daily temperature of week from normal mean.	Variation of actual mean maximum temperature of week from normal mean.	Variation of actual mean minimum temperature of week from normal mean.	Variation of actual mean daily temperature of week from normal mean.
Cuttack	−1·6	−1·0	−1·3	−0·3	−0·9	−0·6	+1·1	+1·9	+1·5	−4·0	−4·8	−4·5
Calcutta	+0·8	+2·6	+1·6	+1·0	+0·9	+0·9	+2·2	+4·7	+3·4	−3·4	−3·5	−3·6
Dacca	+2·5	+3·6	+3·1	+0·6	+2·4	+1·6	+1·3	+3·1	+2·1	−3·0	−2·4	−2·7
Burdwan	+1·5	+3·2	+2·4	+2·2	+0·6	+1·5	+2·2	+5·6	+3·8	+1·6	−3·6	−1·0
Patna	+3·2	+4·4	+3·8	+3·4	+2·6	+3·0	+4·0	+6·1	+5·0	−0·4	−3·5	−1·9
Gya	+1·6	+1·4	+1·6	+3·0	+3·4	+2·8	+4·1	+3·6	+3·9	−2·4	−1·7	−2·0
Purneah	−0·2	+4·7	+2·3	+0·5	+2·6	+1·5	+0·6	+4·2	+2·5	−2·4	−4·6	−3·5
Hazaribagh	+1·3	+2·6	+1·9	+3·6	+1·7	+2·5	+4·8	+5·5	+5·2	−2·5	−5·0	−3·9
Darjeeling	+6·5	+2·0	+4·2	+8·9	+1·2	+4·8	+9·1	+1·7	+5·3	+10·5	−0·8	+4·6

Rainfall—On the whole, has been deficient in quantity; South Behar and Chutia Nagpur have been rainless, and Orissa almost so; while the falls in North Behar are little more than a third of the normal amount. In South-West and North Bengal the falls are practically normal, but in East Bengal they are nearly twice as large as usual. Even in South-West Bengal, though on the average a fair amount of rain has fallen, only a few districts have received good falls, and these are 24-Pergunnahs, Howrah, Hooghly, Jessore, and Khoolna. In East Bengal the districts receiving the largest fall have been Furreedpore, Dacca, Comillah, and Mymensingh; and in North Bengal the falls have been practically confined to the districts of Bogra, Rungpore, Julpigoree, Cooch Behar, Darjeeling Hills, and Pubna.

The following table gives the summary of the temperature and rainfall data of each of the seven meteorological divisions of the province for the month of January 1890 :—

Meteorological Divisions.	Temperature.						Rainfall.							
	Highest observed during month.	Lowest observed during month.	Averages for month.			Average mean of month above or below normal mean of month.	Of month.			Rainy days.			Since 15th May 1889.	
			Of highest of each day.	Of lowest of each day.	Of mean for each day.		Average.	Normal average.	Variation.	Average number in month.	Normal average number in month.	Variation.	Average.	Normal average.
Orissa*	88·9	46·9	80·8	58·4	69·6	+0·6	0·09	0·38	−0·29	0·4	1·0	−0·6	62·10	53·46
South-West Bengal	87·3	43·8	78·5	56·1	67·3	+1·4	0·44	0·45	−0·01	0·8	1·2	0·4	52·81	51·94
East Bengal	81·3	46·0	77·0	56·8	66·9	+2·1	1·03	0·56	+0·47	1·8	1·4	+0·4	76·56	74·28
North Bengal*	81·4	37·9	76·7	53·2	65·0	+2·0	0·42	0·43	−0·01	1·4	1·2	+0·2	73·54	70·43
North Behar	78·3	40·5	74·9	51·4	63·2	+2·3	0·23	0·60	−0·37	0·9	1·5	−0·6	57·89	48·79
South Behar	82·6	41·9	76·4	51·8	64·1	+2·4	Nil	0·56	−0·56	0·0	1·7	−1·7	44·16	43·86
Chutia Nagpur	82·0°	37·9°	74·3°	50·6°	62·4°	+2·0°	Nil	0·66	−0·66	0·0	1·9	−1·9	43·08	49·57
Assam	83·8	42·2	74·0	54·7	64·3	+1·7								

* Pooree, Julpigoree and Chyebassa not included.

Meteorological Office, Bengal,
The 11th February 1890.

A. Pedler,
Meteorological Reporter to the Govt. of Bengal.

SUPPLEMENT TO THE CALCUTTA GAZETTE, FEBRUARY 12, 1890.

Meteorological Report of the Province of Bengal

Meteorological Division.	District.	Representative station.	STATION OBSERVATIONS. Air pressure. Mean barometric height, 8 A.M.	Mean reduced to sea-level.	Variation from mean.	Wind. Prevailing direction.	Mean wind velocity.	Temperature. Highest during week.	Date.	Lowest during week.	Date.	Mean maximum temperature.	Mean minimum temperature of week.	Mean daily temperature of week.	Variation from normal mean of week.	Mean, 8 A.M., temperature
Orissa.	Pooree	Pooree ...	30·083	30·096	—	Calm	86	81·6	2, 6, 7 Feb.	56·9	1, 3 Feb.	81·2	61·2°	71·2°	—	65
		Gopalpore	30·071	30·093	+·078	NNW	283	79·7	6th ,,	56·0	1st ,,	78·8	62·0	70·4	−2·8	67·2
		False Point ...	30·083	30·105	+·044	NW	137	80·9	4th ,,	50·5	1st ,,	79·3	56·2	67·8	−3·3	63·0
	Cuttack	Cuttack ...	30·029	30·114	+·059	Calm	21	87·9	7th ,,	53·9	1st ,,	85·3	60·3	72·8	−1·8	63 8
	Balasore	Balasore ..	30·052	30 114	+·052	NNW	79·3	82·4	4th ,,	48·4	1st ,,	81·0	53·3	67·2	−2·4	66·5
South-West Bengal.	South-West Midnapore / South 24-Pergunnahs	Sangor Island	30·084	30·111	+·053	NNW & NE	178 0	78·2	2nd ,,	55·3	2nd ,,	76 8	57·8	67·3	−2 8	61 6
	Midnapore	Midnapore ...	29 958	30·118	+·045	N	21·1	84·3	5th ,,	51·2	1st, 3rd ,,	82·0	53·9	68·0	−0·8	60·6
	24-Pergunnahs ... ... / Howrah ... .. / Hooghly	Calcutta .	30·090	30·113	+·048	Calm	51·0	78 5	5th ,,	51 8	1st ,,	77·3	53 2	65·3	−2·4	59·0
	Burdwan	Burdwan	30 005	30 111	+ 042	Calm	22·7	81·0	7th ,,	48·3	3rd & 4th Feb.	79·7	50·6	65·2	−2·6	56·4
	Bankoora	Bankoora ...	29·776	30·100	+·042	Calm & W	38·0	80·9	5th ,,	50·3	2nd ,,	80·1	51·7	65 8	−1 7	56·9
	Beerbhoom ... ... / West Burdwan	Ranegunge	29·780	30·138	+·055	WNW	46·4	81·7	5th, 6th ,,	50·2	1st, 3rd ,,	80·8	51·1	65·9	−1·4	56·1
	Moorshedabad	Berhampore...	30·039	30·111	+ 044	WNW	39·1	78·6	5th & 7th Feb.	47·6	6th ,,	77·6	49·4	63·5	−2·7	54·4
	Nuddea	Krishnaghur...	30 005	30·135	+·074	NNW	59·2	79·8	5th, 7th ,,	44·9	7th ,,	79·2	46 9	63·0	−2·4	57·2
	Jessore ... ... / Khoolna	Jessore ..	30·073	30·108	+·055	Calm	23·8	78·3	7th ,,	40·9	7th ,,	77 6	51·9	64·8	−2·2	55·8
East Bengal.	Chittagong	Chittagong	29·991	30 087	+·025	NW	51·0	81·1	1st, 2nd ,,	51·2	7th ,,	80 1	52·6	66 4	−1·1	59·1
	Chittagong Hill Tracts	Demagiri	Observations not received.													
	Backergunge	Barrisal ..	30·074	30·087	+·056	Northerly	35·3	77·3	5th, 7th Feb.	50·1	7th ,,	76·7	52 0	64·4	−2 6	59·7
	Noakholly	Noakholly ...	30·055	30·101	—	N	32·7	79·0	1st, 2nd, 6th Feb.	47·0	5th, 6th ,,	78·4	48·4	63·4	—	62·(
	Furreedpore	Furreedpore...	30·008	30 110	+·054	Calm & N	44·0	74·0	1st & 3rd Feb	49·5	6th, 7th ,,	73·7	51·0	62·4	−2·9	57·(
	Dacca	Dacca ..	30·061	30 086	+·031	Northerly	59·3*	80·1	1st ,,	48·2	7th ,,	78·1	50 7	64·4	−3·0	58·(
	Tipperah	Commillah ..	30·070	30·107	+·059	NW	21·8	80·4	1st ,,	48·1	6th ,,	78 7*	49·8	64·2*	−2·6	59 (
	Mymensingh	Mymensingh	30·037	30·098	+·039	N	39·5	77·1	1st ,,	48·1	6th ,,	75·9	49·6	62·7	−1·4	55·(
North Bengal.	Bogra	Bogra	30·009	30·077	+·049	W	36·1	78·3	7th ,,	47·0	3rd, 5th ,,	77·3	48 2	62·8	−0·9	55·(
	Pubna	Serajgunge ..	30·045	30·005	+ 049	Westerly	18·0	78·5	7th ,,	44·9	5th ,,	77·7	47·5	62·6	−1·4	55
	Rajshahye	Rampore Beauleah.	30·030	30·104	+·.60	N	31·7	77·9	1st ,,	45·9	5th ,,	76·4	48 1	62·2	−1·0	56
	Maldah	Maldah ...	30·042	30·129	—	NW	61·3	78 6	7th ,,	42·7	5th ,,	77·4	44·5	61·0	—	57·
	Dinagepore	Dinagepore	29 973	30·103	+ 037	W	28·0	78·1	1st & 7th Feb	41·9	5th ,,	77 2	46·1	61·7	−0·6	51·
	Rungpore	Rungpore	29 978	30 114	+·074	Calm & E	17·0	77·8	7th ,,	44·0	2nd ,,	76·7	45·3	61·0	+0·5	53·
	Julpigoree ... ... / Cooch Behar	Julpigoree ...	30·702	30 101	+·060	N	48·1	?	?	46 5	2nd ,,	?	48·1	?	?	53·
	Darjeeling Hill Tracts ...	Darjeeling	22·091	—	—	SE	63·0	53·4	5th—7th Feb.	33·5	4th ,,	53·3?	34·8	44·1?	+7·0	39·
North Bhagulpore	Purneah ... ... / North Bhagulpore ...	Purneah ..	29·975	30·114	+·057	Westerly	44·4	75·7	7th ,,	42·0	5th ,,	74 8	43·6	59·2	−2·7	40·
	Mozufferpore	Mozufferpore	Observations suspended.													
	Durbhunga	Durbhunga .	29·939	30·120	+·054	WSW	57·4	77·4	7th Feb.	?	?	75·0	?	?	?	54
	Chumperun	Motihari ...	29·878	30·125	+ 078	SW	98·9	76·2	7th ,,	41·9	4th ,,	74 1	43·6	58·9	−1·2	50
	Sarun	Chupra .	Observations incomplete.													
South Behar.	Shahabad ... ... / Dehree .. / Buxar .. / Arrah* ..		29·702	30·145	+·070	SW	130·4	79·8	7th ,,	47·5	6th ,,	77 7	49·6	63·7	+0·9	54
			29·877	30 139	+·062	W NW	69·4	78 9	7th ,,	43·9	2 & 5 ,,	76 5	46·2	61·3	−0·7	53
			29·920	30·132	+·061	Calm	66·5	77·9	4th ,,	42·6	6th ,,	75·7	44·2	59·9	−1·6	51
	Gya	Gya ..	29·734	30·140	+·060	S	103·8	79·5	7th ,,	50·6	6th ,,	77·6	51·8	64·7	−0·9	56
	Patna	Bankipore ...	29 934	30·132	+·058	SW	37·4	76·9	4th ,,	45·4	2nd ,,	75·1	46·6	60·8	−1·4	55
	South Bhagulpore ... / Monghyr	Bhagulpore ...	29·936	30·110	+·054	Calm	10·0*	78·1	6th ,,	43·0	6th ,,	76·0	46·2	61·1	−1·9	52
	Sonthal Pergunnah ...	Doomka ..	29·594	30·133	—	NW	57·0	79·4	7th ,,	44·0	6th ,,	77·5	46·5	62·0	—	56
Chutia Nagpur.	Hazaribagh	Hazaribagh	28·048	30·145	+·046	Westerly	146·4	78 9	7th ,,	40·8	1st, 2nd ,,	75 7	49·8	62 7	−0·2	57
	Lohardugga ... ... / Manbhoom	Ranchee ..	27·898	30 126	+·042	Calm	93·7	79·5	7th ,,	46·6	1st, 5th ,,	76·4	49·3	62·8	−0·6	57
	Singbhoom	Chyebassa ...	29·310	30·141	—	South-westerly.	20·6	83·2	4th ,,	47·5	1st ,,	81·0	50·6	65·8	—	56

* Means of six days.

Explanation.—Summary.—The normal means of air pressure and temperature are the arithmetical average or means of the reading during the same period for the ... The *humidity* of the atmosphere is expressed at percentage, saturated air being presented by 100. A clear sky is denoted by 0 and an overcast sky by 10. The num... are the numerical means or average of the rainfall in that district determined from the returns sent in by the subdivisional station for the period in question during the ... stations in the district sending in returns divided by the number of stations. A rainy day is one on which at least hundredth of an inch fell.

the week ending Friday, the 7th of February 1890.

at 8 A.M.	Average cloud amount at 8 A.M. for week.	Rainfall of week at observing station.	OF WEEK. Mean for district.	OF WEEK. Normal mean.	DISTRICT OBSERVATIONS. RAINFALL. Since 1st of month. Mean for district.	Since 1st of month. Normal mean.	Since 1st of month. Variation.	Since 1st May 1889. Mean for district.	Since 1st May 1889. Normal mean.	Since 1st May 1889. Variation.	Average number of rainy days.	Normal number of rainy days.	Representative station.	District.	Meteorological Division.
84	0	Nil	Nil	0·15	Nil	0·15	−0·15	74·94	55·78	+19·16	0·0	0·3	Pooree ...	Pooree	Orissa.
72	0·1	Nil											Gopalpore ...		
88	0·9	Nil											False Point		
75	4·3	Nil	Nil	0·21	Nil	0·21	−0·21	66·39	52 19	+14·20	0·0	0·4	Cuttack	Cuttack	
73	0·4	Nil	Nil	0·33	Nil	0·33	−0·33	49·96	53·64	−3·68	0·0	0·0	Balasore	Balasore	
93	0	Nil	Nil	0·57	Nil	0·57	−0·57	58·57	62·94	−4·37	0·0	0·7	Sangor Island	South-West Midnapore	South-West Bengal.
														South 24-Parganas	
84	0	Nil	Nil	0·43	Nil	0·43	−0·43	46·39	52 00	−5·61	0·0	0·5	Midnapore	Midnapore	
78	0	Nil	Nil	0·51	Nil	0·51	−0·51	54·16	53·17	+1·93	0·0	0·7	Calcutta	24-Parganas	
														Howrah	
														Hooghly	
84	0	Nil	Nil	0·42	Nil	0·42	−0·42	43·89	47·13	−3·24	0·0	0·7	Burdwan	Burdwan	
82	0	Nil	Nil	0·12	Nil	0·12	−0·12	55·93	52·40	+3·53	0·0	0·5	Bankoora	Bankoora	
80	0	Nil	Nil	0·30	Nil	0·30	−0·30	52·46	51·92	+0 54	0·0	0·6	Raneegunge	Beerbhoom	
														West Burdwan ...	
84	0	Nil	N l	0·28	Nil	0·28	−0·28	51·17	50·83	+0·34	0·0	0·6	Berhampore	Moorshedabad ...	
75	0	Nil	Nil	0·38	Nil	0·38	−0·38	51·61	49·52	+2·09	0·0	0·0	Krishnaghur	Nuddea	
91	0	Nil	Nil	0·39	Nil	0·39	−0·39	54·75	53 61	+1·14	0·0	0·6	Jessore	Jessore	
														Khoolna	
76	0	Nil	Nil	0·12	Nil	0·12	−0·12	100 35	113·90	−13·55	0·0	0·5	Chittagong	Chittagong	Eastern Bengal.
			Nil	0 19	Nil	0·19	−0·19	65·17	81·79	−16·62	0·0	0·5	Demagiri	Chittagong Hill Tracts	
85	0	Nil	Nil	0·30	Nil	0·30	−0·30	78·41	77·31	+1·10	0·0	0 6	Barrisal	Backergunge	
75	0	Nil	Nil	0·30	Nil	0 30	−0·30	90·82	107·41	−16 59	0·0	0·6	Noakholly	Noakholly	
96	0	Nil	Nil	0·37	Nil	0·37	−0·37	62·22	56·09	+6·13	0·0	0·6	Furreedpore	Furreedpore	
77	0	Nil	Nil	0·35	Nil	0·35	−0·35	76·19	59·95	+16·24	0·0	0·6	Dacca	Dacca	
77	0	Nil	N l	0·23	Nil	0·23	−0·23	56·62	69·54	−12·92	0·0	0·5	Commillah	Tipperah	
96	0·1	Nil	Nil	0·26	Nil	0·26	−0·26	88·78	67·57	+21 21	0 0	0 5	Mymensingh	Mymensingh	
78	0	Nil	N l	0 19	Nil	0·19	−0·19	65·02	57·42	+8·20	0·0	0·4	Bogra	Bogra	North Bengal.
81	0	Nil	Nil	0·30	Nil	0·30	−0·30	55·37	53·65	+1·72	0·0	0 5	Serajgunge	Pubna	
74	0	Nil	Nil	0·23	Nil	0·23	−0·23	54·35	54·11	+0 24	0·0	0 6	Rampore Beauleah	Rajshahye	
91	0	Nil	Nil	0·18	Nil	0·18	−0 18	39·76	54 40	−14 64	0 0	0·3	Maldah	Maldah	
85	0	Nil	Nil	0 06	Nil	0·06	−0·06	57·49	57·46	+0 03	0·0	0·4	Dinagepore	Dinagepore	
85	0	Nil	Nil	0·06	Nil	0·06	−0·06	85 87	73·89	+11·98	0·0	0·3	Rungpore	Rungpore	
83	0	Nil		0·03	Nil	0·03	−0·03	117·73	111·28	+6 45	0·0	0·1	Julpigoree	Julpigoree	
88	2·3	Nil	Ni	0·12	Nil	0·12	−0·12	133·46	121·49	+11·97	0·0	0·5	Darjeeling	Cooch Behar	
														Darjeeling Hill Tract	
83	0	Nil	Nil	0·12	Nil	0·12	−0·12	75·00	58·80	+16·20	0·0	0·4	Purneah	Purneah	
			Nil	0·11	Nil	0·11	−0·11	48·83	43 65	+5·18	0·0	0 3	Mozufferpore	North Bhagulpore ...	
83	0·1	Nil	Nil	0 11	Nil	0·11	−0·11	52·11	44 83	+7·28	0·0	0·3	Durbhunga	Mozufferpore	North Bengal.
83	1·4	Nil	Nil	0·13	Nil	0·13	−0·13	63·96	46·02	+17·04	0·0	0·4	Motihari	Durbhunga	
			Nil	0·06	Nil	0·06	−0·06	40·13	43·04	−2·91	0 0	0 3	Chupra	Chumparun	
83	0	Nil												Sarun	
83	0·7	Nil	Nil	0·14	Nil	0·14	−0·14	46·07	41·22	−0·15	0·0	0·4	Dehree	Shahabad	South Bengal.
85	0 5	Nil											Buxar		
													Arrah		
81	0	Nil	Nil	0 18	Nil	0·18	−0·18	37·07	41·80	−4·73	0·0	0·4	Gya	Gya	
81	0·4	Nil	Nil	0·19	Nil	0·19	−0·19	43·49	41 51	+1·98	0·0	0·4	Bankipore	Patna	
81	0	Nil	Nil	0·18	Nil	0·18	−0 18	42·43	43·35	−0·92	0·0	0·4	Bhagulpore	South Bhagulpore	
81	0	Nil	Nil	0 22	Nil	0·22	−0·22	54·15	51·01	+3·14	0·0	0·4	Doomka	Monghyr	
	0	Nil	Nil	0·12	Nil	0·12	−0·12	44·03	50·58	−7·55	0·0	0·4	Hazaribagh	Sontha Pergunnahs	Chutia Nagpore.
	0	Nil	Nil	0 23	Nil	0 23	−0·23	44·54	49·36	−5·02	0·0	0·7	Ranchi	Hazaribagh ...	
			Nil	0·44	Nil	0·44	−0·44	38·36	47 36	−9·00	0·0	0·7		Lohardugga ...	
	0	Nil	Nil	0·37	Nil	0·37	−0·37	48·76	51·93	−3·19	0·0	0·8	Chyobassa	Manbhoom ...	
														Singbhoom ...	

ears. The variations are *negative* when the mean for the week is less than the corresponding normal mean, and *positive* when greater.
king cloud amount represents the part of the sky covered, the whole sky being denoted by 10. Under the head District observations of rainfall the normal means
ars. The means of the district are the numerical average of the rainfall return received in the district, *i.e.*, from total rainfall at the subdivisional

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 7th of February 1890.

Meteorological division.	District.	Station.	Rainfall. Saturday, 1st February.	Sunday, 2nd February.	Monday, 3rd February.	Tuesday, 4th February.	Wednesday, 5th February.	Thursday, 6th February.	Friday, 7th February.	Total: Number of rainy days.	Total: Rainfall of week.	Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 16th May 1889.	Average rainfall from 16th May to date.
Orissa ...	Pooree ...	Pooree ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·23	80·71	51·5
		Khurdah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·16	76·57	50·6
		Banpur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	Nil	65·50	49·9
		Palse Point ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·22	77·00	64·1
		Gop ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
		Pipli ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
	Cuttack ...	Jagatsingpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·05	74·40	47·7
		Banki ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·18	52·43	49·6
		Cuttack ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	75·18	50·6
		Kendrapara ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	72·24	53·3
		Jajpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	57·64	53·8
		Dharmsala ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	59·25	?
		Salipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	72·47	?
	Balasore ...	Chandbali ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·31	55·04	52·2
		Bhuddruck ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·54	57·66	52·2
		Sorah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·24	46·05	51·3
		Balasore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	46·61	58·3
		Jellasore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·46	39·50	54·3
		Baripodah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·10	54·79	53·8
South-West Bengal.	Midnapore ...	Contai ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·58	55·18	61·1
		Sangor Island ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·57	56·74	67·0
		Tumlook ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·67	49·00	51·1
		Midnapore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·32	46·26	49·3
		Ghattal ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·29	43·30	54·1
		Kukrahaty ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	59·84	?
		Bhagwanpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·72	
		Garbetta ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	46·29	
	24-Pergunnahs ...	Diamond Harbour ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·55	63·79	59·1
		Canning Town ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·85	
		Alipore Jail ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	53·87	56·1
		Barrackpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·74	53·13	50·1
		Dum-Dum ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·44	65·43	52·1
		Baraset ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·56	58·71	50·1
		Busserhat ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·38	62·41	54·1
	Howrah ...	Howrah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·38	59·04	52·1
		Mohesreka ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·38	55·04	52·1
		(*Colaberiah.*)													
	Hooghly ...	Serampore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·63	55·61	50·1
		Hooghly ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·64	37·53	48·1
		Jehanabad ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·60	41·61	55·1
	Burdwan ...	Culna ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·43	41·32	44·1
		Burdwan ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·37	47·25	48·1
		Cutwa ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·45	43·11	48·1
		Raneegunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·33	55·90	49·1
		Mankur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	53·80	
	Bankoora ...	Bankoora ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·33	50·86	51·1
		Bishenpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 02	57·49	52·1
		Maliara ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·11		51·1
		Khatra ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·03	65·01	54·1
		Indas ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·14	
		Kotalpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	48·40	
		Anda ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	40·44	
		Gangajalghati ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	59·17	
		Raipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	58·35	
		Sonamukhi ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	54·44	
	Beerbhoom ...	Bh. Soory ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·44	59·06	5·1
		Hetampore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 20	47·07	5·1
		Rampore Haut ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 23	47·78	5·1
		Bolpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	55·04	
		Murarai ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	53·10	
	Nuddea ...	Ranaghat ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·37	50·10	4·1
		Kishnaghur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·46	43·95	4·1
		Chooadanga ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·38	49·80	5·1
		Meherpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·34	53·15	4·1
		Kooshtea ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·36	56·00	4·1
	Khoolna ...	Satkhira ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·38	54·54	5·1
		Bagirhat ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·47	55·48	5·1
		Khoolna ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·35	56·82	5·1
		Nakipur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
		Rampal ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
	Jessore ...	Narail ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·34	52·01	
		Jessore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·37	63·00	
		Jhenidah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·39	59·74	
		Magoorah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·36	56·90	
		Bongong ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·47	47·64	
	Moorshedabad ...	Kandi ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·18	58·38	
		Berhampore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·35	46·28	
		Lalbagh ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·20	47·13	
		Asmgunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·36	?	
		Jungipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·35	55·01	
		Lalgola ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	59·02	
		Jingunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	48·20	
		Akhriganj ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	48·06	
		Patkabari ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
Bengal	Chittagong ...	Cox's Bazar ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·05	122·50	
		Chittagong ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·20	77·08	
		Kumbdia ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	113·09	
		Sitkanya ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	63·66	
	Chittagong Hill Tracts.	Rangamati ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	63·12	
		Ruma ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·13	67·20	
	Backergunge ...	Patuakhally ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·34	67·66	
		Perozepore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	72·64	
		Burrisal ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	73·21	
		Bhola ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	80·09	

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 7th of February 1890—contd.

Meteorological Division.	District.	Station.	Rainfall.							Total		Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	Average rainfall from 15th May to date.
			Saturday, 1st February 1890.	Sunday, 2nd February.	Monday, 3rd February.	Tuesday, 4th February.	Wednesday, 5th February.	Thursday, 6th February.	Friday, 7th February.	Number of rainy days.	Rainfall of week.				
...T BENGAL—concld.		*Gournadi* ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	61·31	?
		Bauphal ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	93·12	?
	Noakholly ...	Noakholly	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	102·58	108·05
		Feuny	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·35	70·03	107 07
		Hariskpore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	81·32	?
		Ramganj .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	86·75	?
	Furreedpore	Madaripore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·28	62·98	55·83
		Furreedpore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 35	65 60	50·61
		Goalundo	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·49	58·05	53·43
	Dacca ...	Munshigunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·42	77·51	70·50
		Dacca ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·31	76·45	58·69
		Narainguuge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	81·14	60 19
		Manickgunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·28	69·07	50·28
		Joydebpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	68·55	?
	Hill Tipperah	Agartola ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·21	44·38	61 76
	Tipperah ..	Comilla ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	62·07	76·36
		Chandpore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·22	65·97	76·01
		Brahmunberia	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·24	53·12	61·93
		Ramchandrapore.	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	60·82	?
		Nasirnagar ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	32·39	?
		Daudkandi ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	53·73	?
		Kasba ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	62 44	?
		Laksham ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	69·48	?
	Mymensingh	Kishoregunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	70·80	70·38
		Atia (*Tangail*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	62·60	65·78
		Mymensingh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·29	97 93	74·32
		Jamalpore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·37	60·01	64·53
		Netrokona ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·10	128·47	73·84
		Subornakhali	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·43	?
		Durgapore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	150·28	?
		ShereporeTown	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	88·17	?
		Dewanganj ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·08	?
NORTH BENGAL	Pubna ...	Pubna ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·31	80·20	53·98
		Serajgunge ..	.....	.....	.....	.....	.....	.....	.....	Nil	N	Nil	0·30	60·51	53·16
	Bogra ..	Sherepore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·09	62·07	57·51
		Nowkhilla ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 07	62·44	54·27
		Bogra ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	77·33	61·00
		Panchbibi .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·17	65·98	55·81
	Rajshahye ...	Beauleah ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·37	60·34	53·29
		Nattore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	58·81	55 23
		Naogaon ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·01	57·87	51·43
		Lalpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	30·72	?
		Manda ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·27	?
	Maldah ..	Maldah ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·17	50·53	51·81
		Chanchal ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·19	28·96	56·91
		Gajol ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	30·79	?
		Sibganj ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·77	?
	Dinagepore ..	Mohadebpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·02	53·63	56 4
		Churamon ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	Nil	51·82	52·56
		Raigunge ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·04	52·37	57·85
		Dinagepore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 15	68·33	63·85
		Balooghat	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·10	61·20	51·03
		Thakoorgaon	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·81	?
	Rungpore ..	Bhawanigunge (*Gyabanda*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·08	58·30	61·74
		Rungpore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·08	74·98	74·03
		Kurigram ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 03	91·62	73·37
		Bagdogra (*Nilphamari*).	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·06	68·49	85·26
		Ulipore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	79·10	?
	Jalpigoree ...	Julpigoree ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 05	123·45	117·06
		Alipore Door	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	179·58	?
		Fallacotta ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	128·23	?
		Debiganj ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	90·04	?
		Bhagalpore (Nagrakatta).	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	139·22	?
	Cooch Behar.	Dinhatta ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	Nil	98·83	96·31
		Cooch Behar..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·07	125·89	118·37
		Mekiligunge..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	Nil	122·40	103·74
		Mathbhanga...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	Nil	118·03	111·86
	Darjeeling Hill.	Buxa ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	102·37	102·91
		Silliguri ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·02	121·02	103·45
		Darjeeling ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·20	128·27	108·91
		Kalimpong ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·10	92·15	84·02
		Kurseong ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	170·23	?
ORTH BEHAR	Purneah ...	Kissengunge...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·09	103·67	70·50
		Arraresh ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·16	70·[illegible]	63·84
		Purneah ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	63·47	61·74
		Gondwara ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
		Balarampore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
		Matiari ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
		Kaliaganj ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
	North Bhagulpore.	Maddapore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·11	60·85	49·84
		Scopool ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·09	67·26	48·27
		Protabganj ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	88·16	?
	Durbhunga ...	Lajpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 10	42·57	43 33
		Durbhunga ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·11	50·24	45·97
		Madhubani ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	63·56	45·19
		Rahera ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	60·96	?
		Koshera ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	25·84	?
	Mozufferpore	Sitamarhi ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·08	55·47	43·26
		Mozufferpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·18	48·47	45 60
		Hajipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·16	42·57	42 21
		Pare ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	37·09	?
		Mahua ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	41·03	?
		Sitahar ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
		Pupri ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	48·14	?

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 7th of February 1890—concld.

Meteorological Division.	District.	Station.	Rainfall. Saturday, 1st February.	Sunday, 2nd February.	Monday, 3rd February.	Tuesday, 4th February.	Wednesday, 5th February.	Thursday, 6th February.	Friday, 7th February.	Total. Number of rainy days.	Total. Rainfall of week.	Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	Average rainfall from 15th May to date.
North Behar —concluded.	Chumparun...	Motihari ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·12	75·33	44·0
		Bettiah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	53·67	48·3
		Bagaha ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	70·24	?
		Barbursa ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·70	?
	Sarun ...	Gopalgunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	Nil	35·43	43·5
		Sewan ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·07	41·20	44·0
		Chuppah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·12	40·74	40·7
South Behar	Shahabad	Buxar ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	47·44	38·7
		Dehree ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·03	42·66	40·0
		Bhaboosh ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·12	38·16	41·0
		Sasseram ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·23	29·41	40·6
		Arrah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·16	42·69	40·1
		Mohaniah .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
	Gya ..	Aurungabad...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·12	35·42	43·0
		Gya ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·24	39·85	42·5
		Nowadah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	39·59	40·4
		Jehanabad ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·11	33·40	40·5
		Arwal .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	34·34	
		Daudnagar .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	26·00	
		Sherghati .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	29·29	
		Rafiganj .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	17·92	
		PakriBarawan	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	31·90	
	Patna ...	Patna ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·12	51·49	42·1
		Dinapore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·08	45·53	41·1
		Behar ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·21	41·08	42·5
		Barh ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·16	35·81	39·1
		Bakram ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil		41·28	
		Hilsa ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	36·21	
	Monghyr ...	Begoosrai ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·21	47·62	40·1
		Monghyr ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	41·67	40·1
		Jamui ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·22	39·48	41·1
		Goorr ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	39·19	
		Sheikpura ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	43·32	
	South Bhagulpore.	Bhagulpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·13	45·06	42·1
		Banka ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·20	38·34	45·1
		Kurgaon ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	46·97	
		Bangaon ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
	Sonthal Pergunnahs.	Rajmohal ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·06	50·90	52·1
		Godda ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·22	49·04	47·1
		Pakour ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·24	73·59	55·1
		Nya Doomka	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·29	50·77	53·1
		Deoghur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·36	40·10	51·1
		Jamtara ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·14	45·21	49·1
		Mohagama ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil		?	50·41	
		Nanaat ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	55·87	
Chutia Nagpur.	Hazaribagh ...	Pachamba (*Giridi*).	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·29	38·90	47·1
		Hazaribagh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·31	49·10	47·1
		Samtagurah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	Nil	36·24	46·1
		Manudi Hills	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	Nil		48·1
		Jhoomra Hills	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·01	43·00	52·1
		Barhi ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	31·36	
		Chatra ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	41·04	
		Karegdeha ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	39·35	
		Ramghar ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		
	Lohardugga...	Lohardugga ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·01	45·24	51·1
		Ranchi ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·44	53·61	52·1
		Palamow .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·23	34·16	43·1
		Silli ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	33·80	
		Rahumat ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
		Hossainabad .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	44·40	
		Garwah ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	28·77	
	Singbhoom ..	Chyebassa ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·37	48·76	52·1
		Chakradhar-pore.	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	40·80	
		Ghatsilla ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	N	?	58·70	
		Baharagura...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	N	?	53·80	
	Manbhoom ...	Purulia ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	43·53	42·1
		Gobindpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	33·19	45·1
		Kashinath-pore.	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·01	
		Barrabhoom	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	54·32	
		Jhalda ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·42	
		Oara ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	58·56	

Explanation.—Indicates that no rain has fallen. If the return for any day has not been received, the corresponding space is left blank. If any of the returns are wanting, the corresponding spaces in the total rainfall columns are left blank.

CALCUTTA, *the 11th February* 1890.

SUMMARY OF THE RAINFALL AND METEOROLOGICAL OBSERVATIONS TAKEN IN BENGAL FOR THE WEEK ENDING FRIDAY, THE 7TH FEBRUARY 1890.

DURING the previous week two disturbances had passed through the province, giving fairly general rain to most of the stations in the plains, while along the line of hills to the north and north-west of the province snow had fallen. A cold wave of northerly winds had thus set in over the province, and the general conditions were those of the north-east monsoon or cold weather in a pronounced form. The effects of the disturbances above noted have continued during the week under review, and normal cold-weather conditions have obtained almost throughout this period. Skies have consequently been almost cloudless, temperature and humidity have been low, pressure has been high, and no rain has fallen. Just towards the close of the week, however, the cool northerly current was beginning to fall off in force, and light southerly winds and calms were reported at some of the coast stations, so that the tendency at the end of the week was for temperature and humidity to rise; but on the whole the conditions for the week were typical for the cold weather.

Pressure.—The pressure changes during the week have not been of any particular importance. There was a slight but distinct rise on the 1st February, which continued on the 2nd, but on the 3rd a slight fall set in, which became more rapid on the 4th, though it had ceased on the 5th, when pressure commenced to rise again, the rise continuing on the 6th, while on the 7th pressure was falling again. These slight oscillations are, however, only characteristic of fine settled weather. For the whole week the mean pressure has been in excess of the normal by about 0·04 inch to 0·07 inch, the excess being fairly equally distributed, though on the whole it has been largest in North Behar

Temperature—Has on the whole been generally rising slowly during the week, but there have been the usual oscillations from day to day Taking the general mean temperature of the whole province into consideration, there has been an increase of about 1° to 2° above the temperature of the previous week When compared with the normal, however, the temperatures recorded during the past week have been distinctly low, and the defects vary in the different districts from about half a degree up to two and-a-half degrees; the mean defect in temperature of the whole province for the week equalling 1·6 degrees.

The actual temperatures during the week, the range from day to night, and their variation from the normal values are best seen in the following table, where the average maximum, minimum and mean temperatures at nine typical stations in different districts of the province are given, together with the normal values. From these figures it will be seen that the night temperatures have generally been in much larger defect than those of the day, and that the mean minimum temperatures of the week have been decidedly low.

The lowest temperature recorded during the week was 41·9° at Motihari :—

Table showing the excess or defect of the actual mean temperature from the normal for the week ending 7th February 1890.

	Normal mean maximum temperature for the week ending 7th February.	Actual mean maximum temperature for the week ending 7th February 1890.	Variation of actual mean from the normal.	Normal mean minimum temperature for the week ending 7th February.	Actual mean minimum temperature for the week ending 7th February 1890.	Variation of actual mean from the normal.	Normal mean daily temperature for the week ending 7th February.	Actual mean daily temperature for the week ending 7th February 1890.	Variation of actual mean from the normal.
Cuttack	87·7	85·3	−2·4	61·4	60·3	−1·1	74·5	72·8	−1·7
Calcutta	79·2	77·3	−1·9	56·5	53·2	−3·3	67·8	65·3	−2·5
Dacca	80·0	78·1	−1·9	54·9	50·7	−4·2	67·4	64·4	−3·0
Burdwan	80·9	79·7	−1·2	54·9	50·6	−4·3	67·9	65·2	−2·7
Patna	75·1	75·1	0	49·7	46·6	−3·1	62·4	60·8	−1·6
Gya	78·8	77·6	−1·2	53·1	51·8	−1·3	66·0	64·7	−1·3
Purneah	76·2	74·8	−1·4	48·2	44·6	−4·6	62·2	59·2	−3·0
Hazaribagh	75·3	75·7	+0·4	51·0	49·8	−1·2	63·2	62·7	−0·5
Darjeeling	42·6	53·3?	+10·7?	31·3	34·8	+3·5	37·0	44·1?	+7·1?

Rainfall—Has been entirely absent from the province throughout the week.

The following table gives the summary of the temperature and rainfall data of each of the seven meteorological divisions of the province for the week ending Friday, the 7th of February 1890*:—

Meteorological Divisions.	Temperature						Rainfall.									
	Highest observed during week.	Lowest observed during week.	Averages for week.			Average mean of week above or below normal mean of week.	Of week.			Rainy days.			Since 1st of month.		Since 15th May 1889.	
			Of highest of each day.	Of lowest of each day.	Of mean for each day.		Average.	Normal average.	Variation.	Average number in week.	Normal average number in week.	Variation.	Average.	Normal average.	Average	Normal average.
Orissa	87·9	48 4	81·1	58·6	69·9	- 2·6	Nil	0·24	—0 24	0·0	0·4	—0·4	Nil	0·24	62·10	53·76
South-West Bengal ...	84·3	44 9	79·0	51·8	65 4	—2·1	Nil	0·39	—0·39	0·0	0·6	—0·6	Nil	0·39	52 81	52·33
East Bengal	81·1	47·0	77·4	50·0	64·0	—2·3	Nil	0·28	—0·28	0·0	0·6	—0·6	Nil	0·28	76 56	74·26
North Bengal*	78·6	42·7	77·1	46·6	61 9	—0·7	Nil	0·12	—0 12	0·0	0 4	—0·4	Nil	0·12	73·54	70 55
North Behar	77·4	41·9	74·5	43·6	59·1	—2·9	Nil	0·11	—0·11	0·0	0 4	—0 4	Nil	0·11	57·89	48·90
South Behar	79·8	42·6	76·7	47·2	61·9	—0·9	Nil	0·17	—0·17	0·0	0·5	—0·5	Nil	0·17	44·16	44·98
Chutia Nagpur	79 5°	46·6°	76·1°	49 6°	62 8°	—0·4°	Nil	0·23	—0 23	0·0	0·6	—0·6	Nil	0·23	43·08	49·80

* Chupra, Cuyebasse and Julpigoree not included.

Meteorological Office, Bengal;
The 11th February 1890.

A. Pedler,
Meteorological Reporter to the Govt. of Bengal.

Results of the Meteorological Observations taken at the Alipore Observatory from 2nd to 8th February 1890.

Month.	Date.	Maximum in sun.	Number of hours of bright sunshine.	Mean pressure barometer at 32° Fahr.	Temperature.				Hygrometry.				Wind.		Rain.	Weather.
					Mean.	Maximum.	Range.	Minimum.	Mean wet bulb.	Vapour tension.	Dew point.	Humidity.	Prevailing direction.	Miles recorded.		
1890.		°		Inches.	°	°	°	°	°	Inches	°	%			Inches.	
Feb.	2nd	131·2	9·6	30·091	63·9	76·4	24·1	52·3	55·9	0·346	48·8	61	W by S and variable	54	Nil	Clear, ≏.
,,	3rd	132·5	9·9	·055	64·2	77·3	23·7	53·6	56·5	·356	49·6	63	N and NNW ...	62	,,	Clear, ≏.
,,	4th	130·5	9·2	·012	64·9	78·5	25·2	53·3	57·6	·381	51·4	66	W and variable ...	39	,,	Clear, ≏.
,,	5th	132·1	9·6	·027	65·7	78·0	23·7	54·3	58·2	·392	52·2	64	SW by W and variable.	57	,,	Clear, ≏.
,,	6th	130·8	9·3	·046	64·7	77·6	24·7	52·9	57·3	·374	50·9	65	NNE, calm and variable.	38	,,	Clear, ≏, ≡.
,,	7th	134·3	9·6	·002	66·3	80·8	26·3	54·5	59·8	·432	54·9	70	SW, NNW, and calm	37	,,	Clear, ≏, ≡.
,,	8th	137·5	9·4	·037	67·6	80·8	22·6	58·2	61·2	·456	56·4	67	NNW and NNE ...	44	,,	Clear, ≏, ≡.

	Inches.
The mean pressure of the seven days	30·039
The average pressure of the corresponding period for 24 years, S.-G.'s Office ...	29·970
	Hours.
The total number of hours of bright sunshine	66·6
The maximum possible number of hours of sunshine	78·2
	°
The mean temperature of the seven days	65·3
The average temperature of the corresponding period for 24 years, S.-G.'s Office	70·3
The extreme variation of temperature	28·5
The maximum temperature	80·8
	Miles.
The highest velocity of the wind in one hour	7
	lbs.
The highest pressure of wind on one square foot	Not measurable.
	%
The mean relative humidity	65
The average relative humidity of the corresponding period for 24 years, S.-G.'s Office	69
	Inches.
The total fall of rain from 2nd to 8th February 1890	Nil
The average fall of the corresponding period for 24 years, S.-G.'s Office ...	0·20
The total fall from 1st January to 8th February 1890	0·77
The average fall of the corresponding period for 24 years, S.-G.'s Office ...	0·65

The mean pressure, temperature, &c., are deduced from the traces of the Barograph and Thermograph, and from observations made at 6h, 10h, 16h, and 22h.

The maximum and minimum temperatures are obtained from self-registering thermometers. All the thermometers are verified, and the readings have been corrected to a standard constructed and verified at the New Observatory. They are exposed under a thatched shed open at the sides, and are suspended four feet above the ground.

The barometer readings are corrected approximately to those of the standard, Newman's No 86, formerly at the Surveyor-General's Office.

The hygrometric elements are obtained from Tables III, IV, and V of the official tables computed in the Meteorological Office, and based on Regnault's modifications of August's formula.

The directions and the movement of the wind are taken from the trace of a Beckley's anemograph.

The mouth of the rain-gauge is one foot above the ground.

≏ dew, ≡ fog.

C. Little,

For Meteorological Reporter to the Govt. of India.

Meteorological Office, Govt. of India;
Calcutta, the 10th February 1890.

Abstract of the Results of the Barometric and Thermometric Observations taken at 10 a.m. at the Meteorological Office, Chowringhee, in the month of January 1890.

	Inches.	Date.
The mean pressure at 10 A.M. during the month	30·092	
	°	
The mean temperature at 10 A.M. during the month ...	70·5	
The highest temperature during the month ...	82·9	19th and 24th.
The lowest temperature during the month ...	48·4	28th.
The absolute range of temperature during the month ...	34·5	
The mean daily range of temperature during the month	21·1	
The greatest range of temperature in one day during the month	26·0	28th
	%	
The mean 10 A.M. humidity during the month ...	67	
	Inches.	
The mean 10 A.M. vapour tension during the month ...	·506	
The total rainfall of the month	1·02	
The greatest fall in 24 hours	1·02	25th.
	Days.	
The number of rainy days in the month	1	

C. LITTLE,
For Meteorological Reporter to the Govt. of India.

METEOROLOGICAL OFFICE, INDIA,
The 3rd February 1890.

Results of the Barometrical and Thermometrical Observations taken at the Meteorological Office, Chowringhee, from 2nd to 8th February 1890.

Month.	Date.	Pressure at 10 A.M. corrected and reduced to 32° Fahr.	Temperature. Daily mean.	Maximum.	Range.	Minimum.	Hygrometry. Dry bulb at 10 A.M.	Wet bulb at 10 A.M.	Vapour tension at 10 A.M.	Dew point at 10 A.M.	Humidity at 10 A.M.	Rainfall
		Inches.	°	°	°	°	°	°	Inches.	°	%	Inches.
Feb. 1890 ...	2nd ...	30·178	65·4	78·3	25·9	52·4	69·6	58·7	·348	49·0	48	Nil
" " ...	3rd ...	·148	65·2	77·9	25·5	52·4	70·1	58·7	·344	48·6	46	.....
" " ...	4th ...	·104	67·0	79·9	25·9	54·0	72·6	59·7	·343	48·6	42	.....
" " ...	5th ...	·116	67·4	79·9	25·0	54·9	71·4	57·7	·296	44·6	40	.....
" " ...	6th ...	·139	66·8	79·7	25·8	53·9	71·6	57·7	·293	44·4	38	.....
" " ...	7th ...	·193	69·0	82·1	26·2	55·9	71·6	66·2	·572	62·8	74	.....
" " ...	8th ...	·102	70·4	81·9	23·0	58·9	72·6	67·1	·591	63·7	74	.....

	Inches.
The mean 10 A.M. pressure of the seven days	30·125
	°
The mean temperature of the seven days	67·3
The extreme variation of temperature	29·7
The maximum temperature	82·1
	%
The mean 10 A.M. relative humidity of the seven days	52
	Inches.
The total fall of rain from 2nd to 8th February 1890	Nil

The daily mean temperatures are the crude means of maximum and minimum temperatures.

C. LITTLE,
For Meteorological Reporter to the Govt. of India.

METEOROLOGICAL OFFICE, INDIA;
The 10th February 1890.

MEMORANDUM.

THE returns from the principal Municipalities in Bengal, for the week ending 25th January 1890, present the following results :—

1. The birth-rate in these Municipalities stood at 22·8 per 1,000 of population, against very nearly the same proportion, viz., 23·1 per 1,000, during the preceding week ending 18th January, and the death-rate 18·5, against 21·8 per 1,000, indicating a retrogression in the registration of the latter events.

2. The highest proportions of births and deaths were returned from the following Municipalities :—

Births.	Ratio per *mille.*	*Deaths.*	Ratio per *mille.*
Ranaghat ...	47·9	Poori	62·9
Mozufferpore	47·6	Jessore	49·0
Serampore	41·2	Comillah	42·4
Durbhanga	39·3	Hughli and Chinsurah ...	36·1
Darjiling	37·0	Chittagong	30·5
Santipore	36·8		
Monghyr	35·3		
Narainganj ...	33·1		
Hughli and Chinsurah	32·8		
Rampore Beauleah	31·5		

3. The following figures represent the rates of mortality from the principal diseases under record, during the week under notice, contrasted with similar information for the preceding week ending 18th January :—

	Ratio per *mille* during the weeks ending—	
	25th January 1890.	18th January 1890.
Cholera	1·8	2·3
Small-pox .	·3	·6
Fever .	7·9	8·9
Bowel-complaints	3·3	3·1
Injury .	·5	·3
Other causes	4·7	6·6

indicating chiefly that there was a decrease of mortality from fever and the unspecified diseases coming under the head of "Other causes."

4. Of the diseases mentioned above, cholera, fever, bowel-complaints, and "Other causes" proved conspicuously fatal in the following Municipalities :—

Cholera.	Ratio per *mille.*	*Fever.*	Ratio per *mille.*	*Bowel-complaints.*	Ratio per *mille.*	*Other causes.*	Ratio per *mille.*
Comillah ...	23·1	Jessore ...	24·5	Poori ...	14·6	Comillah ...	19·3
Hughli and Chinsurah ...	9·8			Mozufferpore ...	13·2	Gya ...	10·2
Howrah ...	8·0						

The mortality from small-pox in the Poori Municipality, although still high, was considerably below that of the preceding week ending 18th January, viz., 10·5, against 18·9 per 1,000 of population.

5. Under the heads of *Sex*, *Class* and *Age*, the mortality of the week stood as follows :—

According to Sex.	Ratio per *mille.*	*According to Class.*	Ratio per *mille.*	*According to Age.*	Ratio per *mille.*
Males	29·3	Christians	44·8	Under 1 year ...	139·3
Females	16·6	Hindus	17·9	1 and under 5 years ...	16·2
Ratio of male deaths to every 100 female deaths, calculated on the proportion such mortality bears to the total male and female population ...	125	Mahomedans ...	19·8	5 „ 10 „ ...	13·7
				10 „ 15 „ ...	10·3
				15 „ 20 „ ...	9·6
				20 „ 30 „ ...	11·8
				30 „ 40 „ ...	13·1
				40 „ 50 „ ...	10·4
				50 „ 60 „ ...	17·4
				60 years and upwards ...	59·3

W. H. GREGG, *Dip. Publ. Health, Camb.*,
Sanitary Commissioner for Bengal.

The 10th February 1890.

1	2	3			4			5			6	7							8						9	10		11		12
DISTRICTS.	NAMES OF MUNICIPALITIES.	POPULATION.			BIRTHS.							MORTALITY ACCORDING TO—																		
												Disease.														Sex.				
					Number of—			Ratio per 1,000 of Population per annum.				Deaths from—							Ratio per 1,000 of Population per annum.											
		Males.	Females	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Ratio of male births to every 100 female births.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injury.	Other diseases.	All causes.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injury.	Other diseases.	All causes.	Ratio of deaths per 1,000 of population per annum in the previous week.	Deaths.		Ratio per 1,000 of Population per annum.		Ratio of male deaths to every 100 female deaths, calculated on the proportion such mortality bears to the total male and female population.
																											Males.	Females.	Males.	Females.	
Burdwan ...	Burdwan	18,063	16,017	34,080	4	6	10	6·1	9·2	15·3	66	...	..	7	4	...	4	15	...	...	10·7	6·1	..	6·1	22·9	36·6	8	7	23·0	22·7	104
Midnapore ...	Midnapore ...	16,927	16,633	33,560	4	4	8	6·2	6·2	12·4	100	..	...	...	4	...	4	8	...	...	...	6·2	...	6·2	12·4	15·5	6	2	18·4	6·3	300
Hughli ...	Hughli and Chinsurah.	15,858	15,829	31,687	10	10	20	16·4	16·4	32·9	100	6	...	9	3	...	4	22	9·8	...	14·8	4·9	...	6·6	36·1	32·8	10	12	32·8	39·4	82
Serampore ...	Serampore ...	13,559	12,937	26,496	13	9	21	23·5	17·7	41·2	133	2	..	5	2	1	3	13	3·9	...	9·8	3·9	2·0	5·9	25·5	41·2	11	2	42·2	8·0	525
	Utterpara	3,046	2,464	5,510	3	...	3	28·3	..	28·3	No female birth.	...	...	1	1	...	...	2	...	...	9·4	9·4	..	...	18·9	47·2	1	1	17·1	21·1	81
Howrah ..	Howrah	53,153	37,660	90,813	14	13	27	8·0	7·4	15·5	107	14	...	8	9	...	2	33	8·0	...	4·6	5·2	...	1·1	18·9	26·9	22	11	21·5	15·2	140
	Bali	7,836	6,979	14,815	3	3	6	10·5	10·5	21·1	100	...	...	2	1	..	1	4	...	..	7·0	3·5	...	3·5	14·0	21·1	2	2	13·3	14·9	93
Nuddea ..	Kishnaghur ...	13,263	14,214	27,477	9	5	14	17·0	9·5	26·5	180	..	...	5	...	...	2	7	...	...	9·5	...	...	3·7	13·2	1·9	4	3	15·7	11·0	136
	Ranaghat	4,928	4,655	8,583	3	5	8	18·0	29·9	47·9	60	..	...	2	1	...	...	3	...	...	12·0	6·0	...	..	18·0	47·9	1	2	12·9	22·3	54
	Santipore	13,708	15,979	29,687	10	11	21	17·5	19 3	36·8	90	2	..	7	1	...	...	10	3·5	...	12·3	1·7	...	...	17·5	12·3	8	2	30·3	6·5	500
Jessore ...	Jessore	4,830	3,665	8,495	...	1	1	...	6·1	6·1	No male birth.	2	...	4	2	...	...	8	12·2	...	24·5	12·2	...	...	49·0	49·0	4	4	43·1	56·8	77
Rajshahye ...	Rampore Beauleah	10,766	9,025	19,791	5	7	12	13·1	18·4	31·5	71	...	...	3	...	...	1	4	...	...	7·9	..	...	2·6	10·5	31·5	1	3	4·8	17·3	33
Darjiling ...	Darjiling	4,579	2,439	7,018	4	1	5	29·6	7·4	37·0	400	.	..	2	...	...	1	3	...	...	14·8	...	..	7·4	22·2	37·0	1	2	11·4	42·6	26
Dacca ...	Dacca	42,782	37,379	80,161	9	11	20	5·8	7·1	13 0	81	...	.	12	6	1	6	25	...	...	7·8	3·9	·6	3·9	16·2	21·4	14	11	17·0	15·3	113
	Naraingunj ...	7,605	4,956	12,561	7	1	8	29·0	4·1	33·1	700	..	..	2	2	...	3	7	...	...	8·3	8·3	...	12·4	29·0	58·0	5	2	34·2	21·0	162
Chittagong ...	Chittagong ...	13,340	8,790	22,130	3	4	7	7 0	9·4	16·4	75	...	...	2	4	3	4	13	...	...	4·7	9·4	7 0	9·4	30·5	37·6	7	6	27·3	35·5	77
Tipperah ...	Comillah	8,153	5,353	13,506	1	3	4	3·9	11·5	15·4	33	6	...	...	...	...	5	11	23·1	...	...	...	...	19·3	42·4	34·7	6	5	38·3	48·6	79
Patna	Patna City ...	78,762	81,475	160,237	18	18	36	5·8	5·8	11·7	100	1	...	7	7	...	4	19	·3	...	2·3	2·3	...	1·3	6·2	8 1	9	10	5·9	6·4	83
Gya	Gya	38,290	37,831	76,121	22	19	41	15·0	13·0	25·0	115	...	...	21	...	...	15	36	...	...	14·3	...	...	10·2	24·6	23·2	24	12	32·6	16·5	200
Shahabad ..	Arrah	20,960	22,505	43,465	11	14	25	13 2	16 7	29·9	78	..	...	6	2	...	...	8	...	...	7·2	2·4	...	...	9·6	20·3	4	4	9·9	9·2	100
Mozufferpore .	Mozufferpore ...	23,084	19,658	42,742	6	12	18	15·9	31·7	47·6	50		...	4	5	...	2	11	..	...	10·6	13·2	...	5·3	29·1	13·4	4	7	9·0	18·5	50
Durbhanga ...	Durbhanga ...	33,774	32,322	66,096	26	24	50	20·4	18·9	39·3	108	1		14	...	...	11	26	·8	..	11·0	...	...	5·6	20·4	22 8	13	13	20·0	20·9	100
Saran	Chupra	25,116	26,554	51,670	14	15	29	14·1	15 1	29 2	93	...	1	7	3	3	5	19	...	1·0	7·0	3·0	3·0	5·0	19·1	10·1	12	7	24·8	13·7	184
Bhagulpore ...	Bhagulpore ...	29,640	27,813	57,453	11	7	18	10·0	6 3	16·3	157	...	....	10	..	...	6	16	...	..	9·1	...	...	5·4	14·5	19·9	7	9	12·3	16·8	77
Monghyr ..	Monghyr	28,154	29,366	57,520	13	26	39	11·8	23·5	35·3	50	...	...	7	3	...	8	18	...	...	6·3	2·7	...	7·2	16·3	19·0	9	9	16·6	15·9	106
Purneah ...	Purneah	8,463	6,553	15,016	2	3	5	6·9	10·4	17·3	66	...	...	5	1	...	1	7	...	...	17·3	3·4	...	3·4	24·2	...	5	2	30·7	15·9	200
Poori	Poori	13,247	11,537	24,784	5	4	9	10·5	8·4	18·9	125	3	5	9	7	2	4	30	6·3	10·5	18·9	14 6	4·2	8·4	62·9	65·0	17	13	66·7	58·6	114
	Total ...	550,986	510,588	1,061,574	229	236	465	11·2	11·8	22·8	97	37	6	161	68	10	96	378	1·8	3	7·9	3·3	·5	4·7	18·5	21·5	215	163	20·3	16·6	125

DISTRICTS.	NAMES OF MUNICIPALITIES.	Class. Deaths among—					Class. Ratio per 1,000 of Population per annum.					Age. Deaths.										Age. Ratio per 1,000 of Population per annum.									
		Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.	Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.	Under 1 year.	1 and under 5 years.	5 and under 10 years.	10 and under 15 years.	15 and under 20 years.	20 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 and under 60 years.	60 years and upwards.	Under 1 year.	1 and under 5 years.	5 and under 10 years.	10 and under 15 years.	15 and under 20 years.	20 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 and under 60 years.	60 years and upwards.
Burdwan ...	Burdwan	1	8	6	...	...	388·1	17·6	30·4	...	...	2	2	1	...	...	4	2	1	1	2	157·6	46·1	22·3	...	...	26·3	19·1	11·8	21·2	70·2
Midnapore ..	Midnapore ..	1	7	...	...	...	233·2	14·0	...	...	...	1	1	...	1	...	1	2	...	1	1	70·0	23·1	...	17·1	...	7·1	18·8	...	25·2	28·4
Hugh'i ...	Hughli and Chinsurah	1	17	4	...	...	226·1	35·0	33·7	...	...	3	1	1	1	1	4	1	2	1	7	194·3	23·4	18·0	21·0	20·7	33·5	9·1	24·9	20·0	175·6
Serampore ...	Serampore ..	...	10	3	..	...	..	20·6	166·3	...	...	2	1	1	1	1	1	4	1	...	1	146·5	28·8	20·7	23·4	23·8	9·7	41·8	15·4	...	37·4
	Utterpara	...	2	...	...	...	...	19·5	...	.	..	...	...		...	...	...	...	1	...	1	...	...	...	...	...	...	...	74·2	...	200·0
Howrah ...	Howrah	1	21	11	...	...	27·5	16·0	27·9	...	..	2	5	3	2	3	4	3	6	2	3	50·4	46·9	24·8	15·8	21·3	9·2	8·1	26·5	18·9	41·6
	Bali	...	4	...	...	.	...	15·5	...	...	...	1	...	...	1	...	...	1	...	...	1	143·6	...	...	43·8	...	...	18·6	...	...	71·0
Nudden ...	Kishnaghur ...	...	4	3	...	...	.	11·2	18·9	...	...	2	...	1	...	...	...	2	...	...	2	209·7	...	15·1	...	...	...	24·3	...	...	60·2
	Ranaghat	...	3	...	...	...		21·3	...	...	..	1	...	1	...	1	...	.	...	...	...	251·2	...	46·6	...	83·5	...	...	...	...	...
	Santipore	...	8	2	...	..	.	20·1	11·6	...	...	1	1	1	1	...	1	2	...	1	2	61·5	17·9	13·8	17·9	...	10·6	24·0	...	22·6	53·0
Jessore ...	Jessore	...	4	4	...	...	...	46·1	54·4	..	...	2	...	...	2	...	1	2	...	1	...	536·1	...	...	156·4	...	25·8	68·0	...	92·4	...
Rajshahye ...	Rampore Beauleah	...	4	..	...	...	...	21·0	...	...	...	2	...	...	...	...	...	...	...	...	2	256·2	...	...	...	...	...	...	...	...	108·0
Darjiling ...	Darjiling	1	2	...	...	...	325·0	22·6	...	...	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...	75·1	215·1	307·7
Dacca	Dacca	...	10	15	...	...	...	12·9	19·8	...	...	4	1	1	3	2	6	3	...	1	4	109·6	7·1	5·2	19·6	14·2	20·4	13·4	...	11·0	37·3
	Narsinganj ..	...	2	5	...	...	...	16·4	42·3	...	...	2	1	...	...	...	...	3	...	...	1	372·8	45·6	...	...	...	...	72·9	...	...	79·8
Chittagong ...	Chittagong ..	1	3	9	...	...	65·3	26·9	30·6	...	...	6	...	1	...	...	3	1	...	1	1	554·2	...	20·8	...	...	33·7	15·6	...	47·9	65·3
Tipperah ...	Comillah	...	2	9	...	...	...	17·5	63·3	...	...	5	...	...	...	...	1	1	...	1	3	875·4	...	...	...	...	18·8	26·1	...	64·9	250·1
Patna	Patna City ..	...	14	5	...	...	...	6·1	6·4	...	...	1	3	2	...	1	4	2	3	...	3	12·1	10·7	6·2	...	4·7	7·2	4·5	8·3	...	11·3
Gya ...	Gya ...	...	27	9	...	...	...	23·4	29·1	..	...	8	4	1	...	1	5	3	3	3	8	232·4	32·7	7·4	...	9·9	17·7	12·3	16·0	23·7	80·8
Shahabad ...	Arrah	..	5	3	...	...	...	8·4	13·6	...	...	3	...	1	1	...	...	...	...	...	3	121·1	...	10·1	11·8	...	...	...	...	...	54·1
Mozufferpore ..	Mozufferpore ...	...	8	3	...	..	...	13·9	12·5	...	..	2	...	1	...	. .	1	1	1	1	4	108·9	...	11·6	...	...	6·1	7·5	10·4	16·0	85·5
Durbhanga ...	Durbhanga ...	...	20	6	...	...	...	21·5	17·8	...	...	5	...	5	2	1	...	...	1	4	8	166·7	...	33·2	18·7	12·9	...	...	7·0	47·4	130·2
Sarun	Chupra	...	16	3	...	...	...	21·0	13·1	...	...	2	...	2	...	...	4	3	...	3	5	73·7	...	17·5	...	...	22·6	20·0	...	37·7	76·4
Bhagulpore ...	Bhagulpore ...	...	11	5	...	...	...	14·4	15·1	...	...	5		2	4	...	...	1	2	...	2	217·8	...	17·7	33·1	...	...	5·6	16·5	...	28·9
Monghyr ...	Monghyr	...	15	3	...	...	...	17·4	12·4	...	...	5	4	2	...	...	2	...	...	...	5	175·1	33·4	14·7	...	...	10·1	...	..	...	72·5
Purneah ...	Purneah	...	3	4	...	...	...	17·0	36·7	...	...	1	...	1	...	...	2	1	...	1	1	183·7	...	32·9	...	...	31·7	18·2	...	55·5	64·4
Poori ...	Poori	...	30	...	...	...	...	63·6	...	...	...	...	5	1	...	4	4	6	3	3	4	...	144·7	23·2	...	111·9	32·4	77·0	46·9	69·6	115·2
	TOTAL ...	6	330	112	...	...	44·5	17·9	19·8	...	...	68	29	29	19	15	48	44	25	26	75	159·3	16·2	13·7	10·3	9·6	11·8	13·1	10·4	17·4	59·3

OFFICE OF SANITARY COMMISSIONER FOR BENGAL,

W. H. GREGG, *Dip. Publ. Health, Camb.*,
Sanitary Commissioner for Bengal.

PUBLIC WORKS DEPARTMENT, BENGAL.

IRRIGATION BRANCH.

IRRIGATION OPERATIONS FOR THE OFFICIAL YEAR 1889-90.

Areas leased for Irrigation up to the end of November 1889.

CIRCLE.	DISTRICT.	CANAL.	Estimated full discharge.	Average discharge in month.	Discharge utilised.	Approximate area of land irrigated during the year up to the end of the month.	Approximate area of land under irrigation up to the same date last year.	DETAILS OF AREAS LEASED.								RAINFALL, 1889-90.		RAINFALL, 1888-89.		REMARKS.
								Five years, all crops.	Five years, kharif.	ANNUAL LEASES.										
										Kharif.	Rabi.	Sugarcane.	Bhadoi.	Hot-weather.	Total.	Grand Total.	During month.	Up to end of month.	During month.	Up to end of month.	
			C. ft.	C. ft.	C. ft.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Inches.	Inches.	Inches.	Inches.	
ORISSA ...	Cuttack ...	Taldunda, 1st Reach.	1,342	414	228	10,483	9,832	.....	10,483	.....	384	12	.....	.....	396	10,879	11·90	72·09	11·90	69·45	
		Taldunda, 2nd Reach.	566	286																	
		Machgong ...	776	132	73	27,748	27,021	.....	27,748	.....	222	14	.....	.....	236	27,984	9·10	65·45	5·80	48·52	
		Kendrapara ...	1,067	357·24	146·86	48,088	47,803	.....	51,379	42	3,983	36	.....	.....	4,061	55,440	11·78	75·31	1·90	48·84	
		Gobri ...	372·82	42·14	12·33	1,876	1,717	.....	2,224	.....	215	3	.....	.....	218	2,442	11·01	65·07	2·58	37·02	
		Gobri Extension	648	64·70	10·64	1,940	2,345	.....	2,024	.....	7	.....	.....	.....	7	2,031	10·31	70·93	2·13	46·55	
		Pattamoondi ...	885	74·20	9·50	7,616	9,2 3	.....	9,223	80	543	.....	.....	.....	623	10,446	No gauge fixed.				
		High Level, Range I.	608	159·25	69·98	18,343	18,498	.....	17,188	.....	480	3	.....	.....	483	17,671	10·60	72·68	0·86	38·45	
		High Level, Range II.	727·16	62·71	79·65	2,370	2,444	.....	2,331	.....	61	.....	.....	.....	61	2,442	.....	.....	.....	.....	
	Balasore ...	High Level, Range III.	727·16	208·13	208·13	35,749	20,898	.....	34,399	.....	.....	88	.....	.....	88	34,487	9·50	49·48	1·71	51·12	
		Total ...	.....	.....	.....	154,113	139,751	.....	157,649	122	5,895	156	.....	.....	6,173	163,822	.....	.....	.....	.....	
	Total of the corresponding period of last year.		.....	.....	.....	.....	.....	.....	123,421	124	2,627	169	.....	.....	2,920	131,341	.....	.....	.....	.....	
SOUTH-WESTERN.	Midnapore ...	Midnapore ...	1,411	372	149	61,732	49,769	.....	60,695	.....	11	.....	.....	.....	11	60,676	3·93	46·91	0·03	61·58	Whole month discharging.
		Panchkoorah ...	522	8	.....	3,493	4,619	.....	4,349	.....	369	.....	.....	.....	369	4,715	1·67	51·21	0·26	55·42	9 days discharging.
	Howrah ...	Tidal Reaches, Ranges I and II.	.....	.....	.....	357	389	.....	318	.....	.....	.....	.....	.....	.....	319	.....	.....	.....	.....	
		Total ...	.....	.....	.....	65,582	54,777	.....	65,329	.....	380	.....	.....	.....	380	65,709	.....	.....	.....	.....	
	Total of the corresponding period of last year.		.....	.....	.....	.....	.....	.....	55,009	44	1,136	.....	.....	.....	1,180	56,189	.....	.....	.....	.....	
BOSE ...	Shahabad ...	Western Main ...	4,342	1,584	40	19,623	20,727	15,312	.....	2,707*	1,937	159	38	284	5,125	20,437	2·43	47·36	0·01	39·73	* These are correct figures. (*Vide* Superintending Engineer's memo. No. 5490, dated 27th December 1889.) † Less area due to transfer to five years' leases.
		Buxar	1,226	430	255	76,864	77,153	47,420	.....	20,694*	1,253	2,041	552	3,380	28,220	75,640					
		Arrah	2,000	906	670	136,639	147,443	91,460	.....	26,687†	4,439	2,220	211	8,373	41,930	133,460	0·20	41·30	0·58	37·07	
	Patna and Gya.	Eastern Main ...	1,466	573	188	1,331	1,647	1,091	.....	703	15	13	2	.....	732	1,823	0·30	45·97	0·68	41·83	
		Patna				53,407	57,934	37,424	.....	18,593	1,427	271	287	.....	20,488	57,911					
		Total ...	.....	.....	.....	287,864	304,904	192,727	.....	69,293	9,121	4,704	1,390	12,037	96,545	289,272	.....	.....	.....	.....	
	Total of the corresponding period of last year.		.....	.....	.....	.....	.....	191,557	.....	66,316	35,081	3,123	330	9,054	113,904	305,461	.....	.....	.....	.....	
	Grand Total ...		.....	.....	.....	507,559	499,432	192,727	222,979	69,415	15,396	4,860	1,390	12,037	103,098	518,803	.....	.....	.....	.....	
	Grand Total of the corresponding period of last year		.....	.....	.....	.....	.....	191,557	183,430	66,484	38,844	3,292	330	9,054	118,004	492,991	.....	.....	.....	.....	

CIRCULAR AND EASTERN CANALS.

Approximate Return of Traffic for the week ending Saturday, the 8th February 1890, as compared with the corresponding week of the previous year.

Nature of Cargo.	Week ending Saturday, the 8th February 1890.			Week ending Saturday, the 9th February 1889.		
	Number of boats.	Weight of cargo.	Tollage.	Number of boats.	Weight of cargo.	Tollage.
	No.	Mds.	Rs.	No.	Mds.	Rs.
Rice and paddy	1,807	3,45,095	5,900	1,576	4,07,000	7,006
Jute	179	1,35,490	2,320	110	82,150	1,480
Firewood	112	69,925	1,080	97	44,300	674
Other articles	979	2,40,465	3,510	1,113	2,24,430	3,297
Total ...	3,077	7,90,885	12,810	2,896	7,57,880	12,457

Weekly Return of Traffic Receipts on Indian Railways.

EAST INDIAN RAILWAY.

Approximate Return of Traffic for week ended 1st February 1890, on 1,525½ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
...ffic for the week ...	*247,965	*2,85,017 11 0	24,72,428 30	5,73,894 12 6	20,375 4 0	8,79,287 11 6	65,622½	86,687½	152,310½
...le of railway	.....	186 13 4	.....	376 3 3	13 5 8	576 0 3	.....	.....	....
...ous 4 weeks of half-	952,143	10,81,922 9 0	91,60,669 30	20,90,098 2 0	71,080 10 0	32,42,597 5 0	236,037½	326,886½	562,923½
...otal for 5 weeks ...	1,200,108	13,66,340 4 0	1,16,33,098 20	26,63,992 14 6	91,461 14 0	41,21,795 0 6	301,658	413,576	715,234
Comparison.									
...corresponding week ...ious year ... ...f railway correspond- ...k of previous year .. ...orresponding date of ...s year	270,790	3,34,076 0 4	27,88,780 10	6,28,252 3 9	14,989 8 4	9,78,217 12 [illegible]	68,330	99,318	167,648
	... ..	210 9 4	.....	411 13 4	9 13 3	641 3 11	.....	.....	.....
	1,150,104	13,77,073 14 1	1,33,41,809 30	29,52,069 7 9	71,069 0 2	44,00,811 15 [illegible]	311,032	471,464	782,496

...rease in coaching traffic is due to figures for the corresponding period of 1889 having included earnings on account of troop extra trains, and of "Magh Mela."

Approximate Statement of gross receipts of the East Indian Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

...'s for week ending February 1889.		Receipts for week ending 1st February 1890.			Total receipts from 1st April 1888 to 2nd February 1889.			Total receipts from 1st April 1889 to 1st February 1890.			Total increase in 1890.	Total decrease in 1890.
Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
9,78,218	641	1,525½	8,79,283	576	1,525½	3,09,40,537	550	1,525½	3,06,82,862	547	.....	2,57,675

PATNA-GYA STATE RAILWAY.

Approximate Return of Traffic for week ended 1st February 1890, on 57½ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles Ru		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Tot
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	11,838	6,113 0 0	39,861 10	2,509 15 0	52 9 0	8,675 8 0	1,807	587	2,
Or per mile of railway	207	106 13 11	697 0	43 14 1	0 14 9	151 10 9	.....	.....	...
For previous 4 weeks of half-year	47,282	24,471 6 0	1,21,219 10	8,423 12 0	179 15 0	33,075 1 0	6,254	2,862	9,
Total for 5 weeks ...	59,120	30,585 6 0	1,61,080 20	10,933 11 0	232 8 0	41,750 9 0	8,061	3,449	11,
Comparison.									
Total for corresponding week of previous year	11,792½	6,331 7 7	22,959 30	1,654 8 0	29 5 9	8,015 5 4	1,078	416	2,
Per mile of railway corresponding week of previous year ...	206	110 11 0	401 20	28 14 10	0 8 3	140 2 1	.....	.....	...
Total to corresponding date of previous year	57,830½	30,563 4 0	1,55,197 10	8,541 12 0	161 1 6	39,266 1 6	9,087	2,887	11,

Approximate Statement of gross receipts of the Patna-Gya State Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 2nd February 1889.			Receipts for week ending 1st February 1890.			Total receipts from 1st April 1888 to 2nd February 1889.			Total receipts from 1st April 1889 to 1st February 1890.			Total increase in 1890.	Total decrease 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	
57½	8,015	140	57½	8,676	152	57½	4,08,024	152	57½	4,24,182	169	16,158	.....

TARKESSUR BRANCH RAILWAY.

Approximate Return of Traffic for week ended 1st February 1890, on 22¼ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles	
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.		
Total traffic for the week ...	10,518	4,875 9 0	13,359 20	474 0 0	8 0 0	5,357 9 0	898	70
Or per mile of railway ...	.....	219 2 1	.....	21 4 10	0 5 9	240 12 8	.....	.....
For previous 4 weeks of half-year	69,123	17,429 8 0	40,104 0	1,532 8 0	25 15 0	18,987 15 0	3,221	249
Total for 5 weeks ...	88,641	22,305 1 0	53,463 20	2,006 8 0	33 15 0	24,345 8 0	4,119	319
Comparison.								
Total for corresponding week of previous year	19,700½	5,048 9 9	10,505 10	351 5 0	7 8 0	5,407 6 9	905	63
Per mile of railway corresponding week of previous year ...	.....	226 14 5	.....	15 12 8	0 5 5	243 0 6	.....	.....
Total to corresponding date of previous year	90,768	22,794 1 7	44,501 20	1,550 6 0	31 3 9	24,375 11 4	4,234	320

Approximate Statement of gross receipts of the Tarkessur Branch Railway, prepared in accordance with Public Work Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 2nd February 1889.			Receipts for week ending 1st February 1890.			Total receipts from 1st April 1888 to 2nd February 1889.			Total receipts from 1st April 1889 to 1st February 1890.			Total increase in 1890.	T decr
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	
22¼	5,407	243	22¼	5,358	241	22¼	2,31,256	236	22¼	2,28,342	233	.....	

DACCA STATE RAILWAY.

Approximate Return of Traffic for week ended 25th January 1890, on 86 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	15,780	5,960 0 0	34,250 0	3,430 0 0	80 0 0	9,470 0 0	2,414	1,130	3,544
Or per mile of railway	183	69 0 0	398 0	40 0 0	1 0 0	110 0 0	.....	.....	.....
For previous 3 weeks of half-year	45,520	16,920 0 0	96,850 0	10,010 0 0	620 0 0	27,580 0 0	6,440	2,368	8,808
Total for 4 weeks ...	61,300	22,880 0 0	1,31,100 0	13,470 0 0	700 0 0	37,050 0 0	8,854	3,498	12,352
Comparison.									
Total for corresponding period of previous year	15,189	4,836 0 0	10,884 0	1,250 0 0	94 0 0	6,180 0 0	2,482	622	3,104
Per mile of railway corresponding period of previous year	177	56 0 0	126 0	15 0 0	1 0 0	72 0 0	.....	.....	.....
Total to corresponding date of previous year	56,959	17,314 0 0	44,075 0	14,821 0 0	433 0 0	22,568 0 0	9,215	2,317	11,532

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Dacca State Railway.

Receipts for week ending 26th January 1889.			Receipts for week ending 25th January 1890.			Total receipts from 1st April 1888 to 25th January 1889.			Total receipts from 1st April 1889 to 25th January 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked	Mean mileage worked.	Receipts.	Per mile worked	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
86	6,180	72	86	9,470	110	86	2,46,042	67	86	*3,21,972	87	75,930	.....

* Audited up to week ending 14th December 1889.

NALHATI STATE RAILWAY.

Approximate Return of Traffic for the week ending 1st February 1890, on 27¼ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	3,023	1,087 0 0	10,555 0	722 0 0	14 0 0	1,832 0 0	509	254	763
Or per mile of railway	111	40 0 0	387 0	26 0 0	1 0 0	67 0 0	.....	.....	.....
For previous 3 weeks of half-year	10,781	3,762 0 0	54,882 0	3,314 0 0	51 0 0	7,117 0 0	1,818	907	2,725
Total for 4 weeks ...	13,804	4,839 0 0	65,437 0	4,036 0 0	65 0 0	8,940 0 0	2,327	1,161	3,488
Comparison.									
Total for corresponding week of previous year	3,223	1,179 0 0	10,080 0	945 0 0	14 0 0	2,138 0 0	509	635	1,144
Per mile of railway corresponding week of previous year ..	118	43 0 0	590 0	35 0 0	1 0 0	79 0 0	.....	.....	.....
Total to corresponding date of previous year	14,954	5,282 0 0	74,769 0	3,882 0 0	85 0 0	9,449 0 0	2,399	2,638	5,037

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Nalhati State Railway.

Receipts for week ending 2nd February 1889.			Receipts for week ending 1st February 1890.			Total receipts from 1st April 1888 to 2nd February 1889.			Total receipts from 1st April 1889 to 1st February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked	Mean mileage worked.	Receipts.	Per mile worked	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
27¼	2,138	79	27¼	1,923	67	27¼	84,690	74	27¼	84,507	74	.....	183

TIRHOOT STATE RAILWAY.

Approximate Return of Traffic for the week ending 1st February 1890, on 273 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	43,941	19,435 0 0	2,00,381 0	32,691 0 0	5,578 0 0	57,704 0 0	6,435	9,318	15,753
Per mile of railway	161	71 0 0	1,004 0	120 0 0	3 0 0	194 0 0*	.....	.....	.....
For previous 3 weeks of half-year	102,270	71,962 0 0	8,40,269 0	94,122 0 0	18,000 0 0	1,84,084 0 0	21,516	29,932	51,448
Total for 4 weeks ...	206,211	91,397 0 0	11,30,650 0	1,26,813 0 0	23,578 0 0	2,41,788 0 0	27,951	39,250	67,201
COMPARISON.									
Total for corresponding week of previous year	35,857	14,026 0 0	1,19,895 0	11,605 0 0	2,915 0 0	28,616 0 0	6,004	5,108	11,112
Per mile of railway corresponding week of previous year ...	131	52 0 0	439 0	42 0 0	1 0 0	95 0 0*	.....	.....	.....
Total to corresponding date of previous year	177,494	84,941 0 0	6,29,346 0	57,782 0 0	14,401 0 0	1,37,124 0 0	25,933	25,706	51,639

* Steam-boat earnings excluded in calculating "Total earnings per mile of Railway."

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Tirhoot State Railway.

Receipts for week ending 2nd February 1889			Receipts for week ending 1st February 1890.			Total receipts from 1st April 1888 to 2nd February 1889.			Total receipts from 1st April 1889 to 1st February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs	Rs		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
273	28,616	105	273	57,704	211	264·68	13,66,627	125	273	17,25,108	150	3,38,481	.....

DARJEELING-HIMALAYAN RAILWAY COMPANY, LIMITED.

	Rs.
Approximate earnings for week ending 18th January 1890	8,031
Corresponding week last year	8,321
Decrease	290
Receipts from 1st to 18th January 1890	17,513
From 1st to 19th January 1889	16,338
Increase	1,175
	Miles.
Miles open week ending 18th January 1890	51
Corresponding week last year	51
	Rs. A. P.
Receipts per mile open week ending 18th January 1890	157 7 6
Corresponding week last year	163 2 7
Decrease	5 11 1

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ARRANGEMENTS TO BE ADOPTED FOR THE WORKING OF GOODS TRAFFIC INTO AND OUT OF CALCUTTA AFTER THE COMPLETION OF THE KIDDERPORE DOCKS.

No. 461Marine.

GOVERNMENT OF BENGAL—PUBLIC WORKS DEPARTMENT.

Dated Calcutta, the 18th February 1890.

RESOLUTION.

READ—

A letter No. 0190R.T., dated the 4th February 1890, from the Government of India suggesting that a Committee should be appointed to discuss the various question which will arise in connection with the working of traffic into and out of Calcutta after the completion of the Kidderpore Docks.

RESOLUTION.—On the completion of the Kidderpore Docks the existing arrangements for working both the export and the import goods traffic will have to be largely modified, and, with the concurrence of the Government of India, His Honour the Lieutenant-Governor is pleased to appoint the gentlemen named below to form a Committee to consider and advise on the arrangements that should be adopted on the opening of the Docks:—

The Hon'ble Mr. F. M. Halliday ...	*President.*
Colonel L. Conway-Gordon, R.E., C.I.E. ...	Representing the Government of India.
Mr. W. B. Bestie ...	Representing the Government of Bengal.
The Hon'ble Sir Alexander Wilson ...	Representing the Commissioners for making Improvements in the Port of Calcutta.
Mr. G. H. Simmons	
Mr. J. L. Mackay	Representing the Bengal Chamber of Commerce.
Mr. W. W. Petrie	
Mr. D. W. Campbell, C.I.E. ...	Representing the East Indian Railway Company.
Lieutenant-Colonel G. F. O. Boughey, R.E.	Representing the Eastern Bengal State Railway.

The Committee will consider all questions that require settlement in connection with—

(*a*) the shipment and discharge of the cargoes of the vessels frequenting the port of Calcutta;

(*b*) the transport of goods, whether rail-borne, water-borne, or partly rail-borne and partly water-borne, to and from vessels lying at any place in the port of Calcutta.

The dates for the meetings of the Committee will be fixed by the President, and the Committee's Report will be forwarded by him to the Secretary to the Government of Bengal, in the Public Works Department.

ORDER.—Ordered that a copy of this Resolution be forwarded to the Hon'ble Mr. Halliday and to each Member of the Committee.

Ordered also that a copy of this Resolution be forwarded to the Government of India with reference to the letter from that Government cited above.

By order of the Lieutenant-Governor of Bengal,

E. J. MARTIN,
Joint-Secy. to the Govt. of Bengal.

REPORT ON THE STATE OF THE SALT MARKET FOR THE THIRD QUARTER OF 1889-90.

No. 89B, dated Calcutta, the 6th February 1890.

From—K. G. GUPTA, Esq., Offg. Secretary to the Board of Revenue, L.P.,
To—The Secretary to the Government of Bengal, Financial Department.

SALT.

THE HON'BLE F. B. PEACOCK.

I AM directed by the Board of Revenue to submit the following report on the state of the salt market for the third quarter of 1889-90, comprising the months of October, November, and December 1889.

2. The quantity of salt of every description cleared during the quarter under report amounted to 24,35,503 maunds 14 seers 3 chittacks, against 23,98,512 maunds 30 seers 14 chittacks in the previous quarter, and 24,20,274 maunds 38 seers 9 chittacks in the corresponding quarter of the previous year; and the net amount of duty levied thereon was Rs. 57,16,963-2, against Rs. 55,10,452-14 in the previous quarter, and Rs. 56,74,386 in the corresponding quarter of the previous year.

3. The quantity of excise salt sold in Orissa during the quarter under review and the quantity which remained in store at the close of the quarter are shown in table I:—

TABLE I.

	Cuttack.	Pooree.	Balasore.
	Mds. s. t.	Mds. s. t.	Mds. s. t.
Balance at close of the last quarter	232 0 0	1,86,373 0 0	1,940 0 0
Manufactured or added during the quarter	.....	.....	.....
Total ...	232 0 0	1,86,373 0 0	1,940 0 0
Sales during the quarter	.....	15,509 0 0	120 0 0
Wastage	232 0 0	.....	.....
Total ...	232 0 0	15,509 0 0	120 0 0
Balance at close of the quarter	.....	1,70,864 0 0	1,820 0 0

4. The total sale of excise salt during the quarter under review amounted to 15,629 maunds, against 12,101 maunds in the previous quarter, and 34,327 maunds 33 seers 60 tolahs in the corresponding quarter of the previous year.

5. The subjoined table shows in comparison the importations into the port of Calcutta and the total clearances of sea-imported salt during the quarter under review and the corresponding quarters of the previous two years :—

TABLE II.

	1887-88.		1888-89.		1889-90.	
	Third quarter.		Third quarter.		Third quarter.	
	Imported.	Cleared.	Imported.	Cleared.	Imported.	Cleared.
	Mds	Mds.	Mds.	Mds.	Mds.	Mds.
Liverpool pungah	15,97,645	18,16,109	19,92,487	17,23,633	10,26,804	16,54,525
Foreign kurkutch	6,56,945	5,62,376	5,65,600	4,37,471	10,95,948	5,63,183
Indian ditto	1,54,951	1,57,000	1,50,650	1,31,960	5,640	1,30,002
Total ...	24,09,541	25,35,485	27,08,737	22,93,064	21,28,452	23,47,710

6. The following are the details of the Indian kurkutch salt shown in the above table :—

TABLE III.

	1887-88.		1888-89.		1889-90.	
	Third quarter.		Third quarter.		Third quarter.	
	Imported.	Cleared.	Imported.	Cleared.	Imported.	Cleared.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Bombay	1,54,951	1,57,000	1,48,650	1,29,960	.....	1,24,362
Coconada	.....	.....	2,000	2,000	5,000	5,000
Madras	.....	.....	.....	.....	600	600
Cuddalore	.....	.....	.....		40	40
Total ...	1,54,951	1,57,000	1,50,650	1,31,960	5,640	1,30,002

7. Table IV shews the quantity of sea-imported salt remaining in the warehouses at the close of the quarter as compared with the results of the previous four quarters :—

TABLE IV.

WHERE STORED.	Third quarter of 1888-89.	Fourth quarter of 1888-89.	First quarter of 1889-90.	Second quarter of 1889-90.	Third quarter of 1889-90.
	Mds.	Mds.	Mds.	Mds.	Mds.
Sulkea Government golahs	15,29,709	16,64,397	22,40,003	23,55,265	17,41,84
Chittagong ditto do.	1,31,640	2,32,656	1,53,597	1,42,880	67,587
Total ...	16,61,349	18,97,053	23,93,660	24,98,145	18,09,427

8. The despatches of salt from Calcutta by water and the three railways passing the several salt-pass stations into the interior of the country, both east and west of the river Hooghly, during the quarter under review and the corresponding quarters of the previous two years, are shown in the table below :—

TABLE V.

PERIOD.	*Vid* Balikhali.	*Vid* Sankrail.	*Vid* Gewakhally.	*Vid* Kidderpore.	*Vid* Balliaghatta.	*Vid* Buthtollah Ghât.	By the East Indian Railway.	By the Eastern Bengal and South-Eastern Railways or *vid* Chitpore.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Third quarter of 1887-88 ...	2,78,480	1,51,959	1,03,292	76,700	5,26,644	19,095	9,18,381	1,90,910
Ditto of 1888-89 ...	2,42,907	1,56,790	88,024	81,153	5,96,465	3,504	8,01,217	2,06,864
Ditto of 1889-90 ...	2,05,554	1,18,313	75,155	63,595	5,03,902	2,119	8,78,548	2,13,578

9. The quantity of salt despatched by the East Indian Railway to stations beyond Buxar during the quarter under review amounted to 2,126 maunds 10 seers, as noted in the margin, against 1,518 maunds 30 seers in the previous quarter, and 8,808 maunds 20 seers in the corresponding quarter of the previous year.

	Mds.	s.
October	...	...
November	1,518	30
December	607	20
Total ...	2,126	10

10. The shipments of Liverpool salt for the port of Calcutta according to published market reports were as follow:—

	Tons.
October	12,890
November	22,770
December	22,570
Total ...	58,230

No shipments were reported during the quarter under review for the port of Chittagong.

11. Table VI shows the market price per 100 maunds of Liverpool and other descriptions of salt at the close of each fortnight during the quarter as compared with those obtaining during the same period last year:—

TABLE VI.

DESCRIPTION OF SALT.	Prices on the 15th October		Prices on the 31st October		Prices on the 15th November		Prices on the 30th November		Prices on the 15th December		Prices on the 31st December	
	1888.	1889.	1888.	1889.	1888.	1889.	1888.	1889.	1888.	1889.	1888.	1889.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Liverpool pungah	86	116	88	105	91	103	95	100	95	105	99	104
French kurkutch	62	...	60	...	60	...	60	...	60	...	60	...
Jedda ditto	60	58	59	58	60	57	60	55	60	54	60	53
Bombay ditto	77	52	90	52	92	60	88	64	90	65	90	64
Italian ditto	62	...	60	...	60	...	60	...	60	...	60	...
Muscat ditto	58	59	56	59	58	56	57	56	58	53	58	52
Rock	55	...	55	...	56	118	56	...	75	150	75	150

12. The following table shows the quantity of sea-imported salt admitted into bond, and cleared from bond and shipboard, at Chittagong and Naraingunge during the quarter under review and the corresponding quarter of 1888-89:—

TABLE VII.

PORT.	DESCRIPTION OF SALT.	ADMITTED INTO BOND.		CLEARED.	
		Third quarter of 1888-89.	Third quarter of 1889-90.	Third quarter of 1888-89.	Third quarter of 1889-90.
		MDS. S. C.	MDS. S. C.	MDS. S. C.	MDS. S. C.
Chittagong	Liverpool	1,20,669 0 0	.....	85,827 16 0	62,814 0 0
	Madras	.....	.....	1 2 0	0 8 0
	Muscat	.....	.....	0 16 0	.....
	American	.....	.....	.....	0 20 0
Naraingunge	Liverpool	.....	.....	7,920 0 0	13,365 0 0
	Total ...	1,20,669 0 0	.....	93,748 34 0	76,179 28 0

No transactions in sea-imported salt have been reported for the quarter from the ports of Cuttack, Pooree, and Balasore.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, and State and Prospects of the Crops in the different districts of Bengal, as reported to Government, during the week ending the 15th February, 1890.

No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
	BENGAL.		
	Western Districts.		
Burdwan Divn. 1	Burdwan Feb. 15, '90	Nil	Weather—growing warm. In Ranigunge *rubbi* expected to give an 18-anna crop, and elsewhere it will be from 10 to 14 annas. There is more *rubbi* in Ranigunge than elsewhere, so the district crop may be 15 or 16 annas. Prices of common rice:— Srs. Burdwan ... ... 18; Culna ... . 16; Cutwa ... ... 16½; Ranigunge ... ... 19 } per rupee
2	Bankoora ,, 15, '90	Nil	Weather seasonable. *Rubbi* crops doing well. Pressing of sugarcane continues. Common rice 20½ seers per rupee at Bishenpore and 20 seers at Sudder.
3	Birbhum ,, 15, '90	Nil	Weather—growing warm. Prospects of crops continue excellent. Sugarcane very flouri-hing. Prices of rice all along the southern part of the district range from 18 to 20 seers per rupee, and in the central and northern portions 16 to 17 seers per rupee.
4	Midnapur ,, 15, '90	Nil	Weather—seasonable. General prospects good. *Rubbi* and indigo doing well in the Sudder subdivision. Prices of rice:— Srs. Sudder ... ... 18; Contai ... ... 24; Tamluk ... ... 18; Ghatal ... ... 20 } per rupee.
5	Hooghly ,, 15, '90	Nil	Weather—seasonable. Outturn of *rubbi* very hopeful. Outturn of sugarcane good, especially in Jehanabad. Prices of common rice:— Srs. Sudder ... ... 12½; Serampore ... ... 14; Jehanabad ... ... 17¼ } per rupee.
	Howrah ,, 15, '90	Nil	Weather—getting warmer. Prospects of *rubbi* crops continue good. Prices of common rice:— Srs. Howrah ... ... 12½; Uluberia ... ... 16 } per rupee.
	Central Districts.		
Presidency Divn. 6	24-Perghs. Feb. 15, '90	Nil	Weather—seasonable. Good *amun* crop has been harvested. Prospects of winter crops also good. *Boro* rice is being cultivated in some parts. Price of common rice 16 seers per rupee.
7	Nuddea ,, 15, '90	Nil	Weather—seasonable. Prospects of crops on the ground favourable. Cultivation of lands for *aus* going on.
8	Khoolna ,, 15, '90	Nil	Weather—seasonable. Reaping of *amun* completed; outturn good. State of *boro* crop good and of *rubbi* fair.
9	Jessore ,, 15, '90	Nil	Weather—getting warm. Harvesting of *amun* paddy over; outturn 14 annas in Magura and 16 annas in Narail. Linseed and other spring crops prospering. Prices of common rice 14 to 16 seers per rupee.
10	Moorshedabad ,, 15, '90	Nil	Weather—clear and cold. Prospect of *rubbi* continues favourable.
Rajshahye Divn. 11	Dinagepur ,, 15, '90	Nil	Weather—days getting warmer, though nights still cool. Prospects of *rubbi* crops good. *Amun* harvesting nearly over. Sugarcane being pressed. Land being prepared for *bhadoi*.
12	Rajshahye ,, 15, '90	Nil	Weather—seasonable. Prospects of *rubbi* crops good generally. Ganja manufacture commenced in Nowgong. Rice sells at 17 seers 3 chittacks per rupee.
13	Rungpur ,, 15, '90	Nil	Weather—getting warm. Prospects of tobacco and wheat continue good. Mustard is being gathered. Ploughing for *aus* and jute going on vigorously.
14	Bogra ,, 15, '90	Nil	Weather—nights chilly, but days getting warmer. Reaping of *amun* finished. Mustard, *khesari*, gram, &c., being reaped. Common rice selling at 22 seers per rupee.
15	Pubna ,, 15, '90	Nil	Weather—seasonable. *Amun* outturn about 14 annas in Serajgunge and 12 annas in Sudder. Mustard and tobacco expected to be 12 annas crops. Sugarcane deficient. Prices of food-grains slightly lower.
16	Darjeeling ,, 15, '90	0·01	Weather—getting daily warmer. Wheat and barley progressing favourably. In Terai land is being prepared for *bhadoi* crops. Prices of common rice:— Srs. Darjeeling ... ... 12; Kurseong ... ... 13; Silliguri ... ... 19 } per rupee.
17	Julpigoree ,, 15, '90	Nil	Weather—seasonable. *Haimanti* paddy all cut. Condition of tobacco promising except in Salbari thanna. No change in prices.

No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
BENGAL.—*concluded.*			
	Eastern Districts.		
18	Dacca Feb. 15, '90	Nil	Weather—seasonable. Winter crops doing well. Sugarcane being pressed. Mustard and pulses being gathered. Fodder is available. No special change in the prices of food-grains Common rice sold at from 13 to 14½ seers per rupee.
19	Furreedpur „ 15, '90	Nil	Weather—seasonable. Cultivation and sowing of *boro*, sugarcane, and jute in progress. State and prospects of wheat, barley, linseed, and other standing *rubbi* crops continue fair. Coarse rice selling at 15 seers per rupee at Madaripur and Sudder, and at 16 seers per rupee at Goalundo.
20	Backergunge „ 15, '90	Nil	Weather—seasonable. Prospects of *rubbi* crops good. Rain wanted. Common new rice sells at 15 seers per rupee.
21	Mymensingh „ 15, '90	Nil	Weather—seasonable; foggy on the morning of the 14th. Transplanting of *boro* paddy nearly over. Mustard being gathered. Standing crops in good condition. Price of coarse rice 14 seers per rupee.
22	Chittagong „ 15, '90	Nil	Weather—seasonable. The state of all miscellaneous crops is good.
23	Noakholly „ 15, '90	Nil	Weather—seasonable. *Rubbi* crops doing well. Ploughing of land for *aus* crop commenced.
24	Tipperah „ 15, '90	Nil	Weather—close and cloudy. Transplanting of *boro* paddy completed. Winter crops prospering.
25	Chittagong Hill Tracts. „ 14, '90	Nil	Weather—cold and foggy in the morning throughout the week. Gathering of mustard continues. Tobacco, chillies, and other standing crops progressing.
	Hill Tipperah Feb. 15, '90	Nil	Weather—getting warm. Sugarcane and tobacco still being cut *Boro* paddy doing well in low places. *Jums* being cleared in the hills.
BEHAR.			
26	Patna „ 15, '90	Nil	Weather—cool. Harvesting of mustard, pea, gram, and *masur* going on. Other spring crops ripening. Opium has commenced to be collected in some places. Prospects favourable. Prices of food-grains almost stationary.
27	Gya „ 15, '90	Nil	Weather—seasonable Poppy plants in flower, and opium being extracted in places. *Rubbi* good. Mustard and *musoori* being reaped.
28	Shahabad „ 15, '90	Nil	Weather—still cool, but getting warmer. Prospects of *rubbi* crops fair. Poppy crop promising. Prices stationary.
29	Durbhunga „ 15, '90	Nil	Weather—days getting warm. Wheat and barley approaching maturity, and prospects continue favourable. Mustard is being harvested and expected to yield a good outturn. Poppy blossoming. Prices almost stationary.
30	Muzufferpur „ 15, '90	Nil	Weather—seasonable; getting warmer. Mustard being cut. Prospects of wheat and other *rubbi* crops good. Poppy in flower, and prospects very favourable.
31	Sarun „ 15, '90	Nil	Weather—seasonable. *Rubbi*, including wheat, continues to look well, and gives prospect of a 16-anna crop. Prospects of poppy also excellent.
32	Chumparun „ 15, '90	Nil	Weather—bright and getting dry with west wind. Prospects of all crops on the ground excellent. *Rubbi*, including wheat, has begun to ripen. Poppy is in flowers. Prices almost stationary.
33	Monghyr „ 15, '90	Nil	Weather—seasonable. West wind prevailing. Standing crops doing well. Mustard and pulses being reaped.
34	Bhagulpur „ 15, '90	Nil	Weather—seasonable Prospects of crops promising, but rain wanted for *rubbi*. Outturn of mustard in the north of the district is said to have been below 12 annas.
35	Purneah „ 15, '90	Nil	Weather—fine and rather warm. Mustard harvested with good outturn. All *rubbi* crops doing well. Ploughing going on.
36	Maldah „ 15, '90	Nil	Weather—getting warmer. Gathering of *kalai* and mustard almost completed. Transplanting of *boro* paddy continues. Prospects of *rubbi* crops continue favourable, but a shower of rain would much improve them. Common rice selling at an average of 17¾ seers per rupee.
37	Sonthal Pergha. „ 15, '90	Nil	Weather—dry, getting hot in the day. Prospects of crops good, but rain wanted.

	No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
ORISSA.				
Orissa Divn.	38	Cuttack ...	...	Report not received.
	39	Pooree ,, 14, '90	Nil	Weather—seasonable. Threshing of the winter crop (late *sarad*) still continues. Mango crop so far promising. *Dalua* and *mung* doing well. Prices of rice stationary.
	40	Balasore ,, 15, '90	Nil	Weather—seasonable. *Dalua* rice is being transplanted, and sugarcane being cut.
CHOTA NAGPORE.				
		South-West Frontier Agency.		
Chota Nagpore Divn.	41	Hazaribagh Feb. 15, '90	Nil	Weather—seasonable. Prospects generally good, but in Chowparun a full crop is not expected.
	42	Lohardugga ,, 15, '90	Nil	Weather—warm; cold and chilly mornings. Prospects of *rubbi* continue good at head-quarters. Much damage has been done to this crop in the subdivision by frost.
	43	Singbhoom ,, 15, '90	Nil	Weather—seasonable. Prospects of crops favourable. Outturn of sugarcane, mustard, and *surgonja* from 12 to 16 annas. Prices stationary.
	44	Manbhoom ,, 15, '90	Nil	Weather—warmer. Spring crops doing well.

Published for general information.

CALCUTTA; REVENUE DEPT.,
The 18th February, 1890.

P. NOLAN,
Secy. to the Govt. of Bengal.

The following Statement shows the Quantities of the Principal Staples of Traffic imported into Calcutta from the Interior during the month of November, 1889.

IMPORTS INTO CALCUTTA.

Provinces imported.	FOOD-GRAINS.							FIBROUS PRODUCTS.		OILSEEDS.		Tea, Indian.	Cotton, raw.	Silk, raw.	SUGAR.		TOBACCO.	
	RICE AND PADDY.			Wheat.	Gram and pulses.	Other food-grains.	Total.	Jute, raw.	Gunny bags.†	Linseed.	Mustard seed.				Refined.	Unrefined.	Unmanufactured.	Manufactured.
	Rice.	Paddy.	Total (in rice).															
BENGAL.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	No.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
dwan	98,304	17,274	1,09,160	34	1,488	.....	1,10,681	.....	15,200	144	4,051	1,295	5	87	.....	.....	...	6
rbhoom... ...	92,054	1,404	93,998	90	.....	80	93,167	.....	6,510	... ..	384	.....	75	439	.....	.....	...	.....
napore	99,211	5,963	1,04,812	.....	.....	.....	1,04,812	6,576	1,550	1,894	... ..	.....	.....	162	320	...	1	...
ghly	41,465	12,032	49,548	823	7,358	.....	57,729	80,910	77,442	3,062	18,010	.....	433	9	46	3,696	5,130	769
ergunnahs ...	47,382	8,593	52,753	.....	6	... ..	52,759	1,43,815	251,645	.....	.....	.....	1,743	.....	1,028	10,145	474	404
idea	5,349	3	5,351	9,350	50,109	1,132	71,942	93,411	2,825	7,355	20	.....	135	42	.....	2	1,980	.....
lna	225	9,275	6,021	143	175	.....	6,340	25,125	.....	.....	.....	.....	.....	.....	.....	4,075	..	...
ore	383	6,950	4,727	.....	1,841	.....	6,568	04,241	420	202	17	.....	.....	.....	13	6,155	428	...
rshedabad ...	430	1	431	9,772	9,488	380	20,071	8,242	... ..	1,698	2,553	... ..	3	103	.....	.....	...	3
ageepore ...	341	.....	341	.....	... ..	.....	341	14,282	176,925	.....	.....	.....	.....	... ..	.....	.....	...	... ..
shahye	42	.....	42	1,132	5,315	172	6,661	52,069	... ..	2,055	205	.....	... ..	244	.....	.....	...	... ..
ngpore	.....	.....	.....	2,576	.....	.....	2,576	2,08,765	59,300	.....	490	.....	140	... ..	.....	.....	5,283	.....
ra	1,980	.....	1,980	.....	.....	.....	1,980	12,319	... ..	.....	... ..	.....	.....	.....	.....	.....	...	.....
na	.....	.....	... ..	110	237	.....	347	4,24,720	496,735	543	2,317	.....	.....	.....	.....	.....	1,344	.....
jeeling	.....	.....	... ..	... ..	.....	.....	......	16,899	90,125	.....	.....	11,051	.....	.....	.....	.....	...	.....
pigoree	.....	.....	.....	.....	.....	.....	.....	88,314	194,740	... ..	.....	25,277	.....	.....	.....	.....	419	.....
ca	108	.....	108	.....	225	.....	333	3,00,590	490	... ..	725	... ..	1,859	... ..	.....	.....	...	.....
reedpore ...	808	.....	808	.....	1,597	.....	2,405	4,18,105	280	.....	155	171	10	10	.....	.....	...	.....
kergunge ...	65,131	350	65,475	.....	27	.....	65,502	6,403	.....	.....	599	.....	.....	.....	.....	.....	...	.....
mensingh ...	.....	.....	.....	.....	350	.....	350	1,13,311	.....	.....	325	.....	.....	.....	.....	.....	...	... ..
perah ...	750	.....	750	.....	.....	.....	750	4,525	.....	... ..	.....	... ..	.....	.....	.....	.....	...	.....
ttagong ...	300	.....	300	.....	.....	.....	300	852	.....	.....	.....	2,141	1,021	... ..	.....	.....	...	.....
kholly ...	22,806	.....	22,806	.....	.....	.....	22,806	3,625	.....	.....	.....	.....	1,025	.....	.....	.....	...	.....
tal of Bengal ...	4,77,189	66,095	5,18,461	24,038	81,216	1,764	6,28,479	21,88,217	1,374,117	16,053	30,841	39,935	7,053	1,006	2,307	30,073	15,008	1,173
BEHAR.																		
na	183	.....	183	1,803	28,534	3,537	34,117	186	1,390	64,044	22,500	.....	5	8	.....	3,250	277	1,880
... ...	.....	.....	.....	604	398	.....	902	... ..	2,135	.....	.....	.....	.....	4	.....	6,616	...	131
habad	.....	.....	.....	4,913	18,439	.....	23,352	.....	980	8,484	303	.....	.....	.....	.....	9,176	...	8
ufferpore ...	.....	.....	.....	557	446	3,742	4,745	.....	35	572	418	.....	.....	.....	.....	37	80	... ..
rbhunga ...	.....	.....	.....	1,000	2,207	.....	3,307	... ..	1,595	37,798	17,770	6	.....	.....	.....	.....	137	10
un	.....	.....	.....	.....	2,473	970	3,443	.....	525	14,219	4,416	1	.....	.....	.....	.....	...	.....
mparun	.....	.....	.....	.....	... .	... ..	.....	20	.....	8,082	6,050	3	.....	.....	.....	.....	...	.....
ghyr	10	.....	10	9,240	18,837	4	28,097	12	1,470	819	4,278	.....	9	.....	.....	.....	13	4
gulpore ...	6,803	.....	6,805	21,804	4,042	1,778	35,329	.....	.....	4,794	30,717	.....	.....	65	.....	.....	27	... ..
neah	497	... ..	497	4,195	4,430	7	9,120	5,171	7,800	5,055	24,602	.....	.....	.....	.....	.....	933	.....
ldah	.....	.....	.....	13,804	6,029	989	20,822	9,131	.....	922	830	.....	.....	.....	.....	.....	...	.....
thal Pergunnahs.	94	.....	94	16,844	2,876	2,184	21,998	3,743	595	3,578	32,470	... ..	.....	79	.....	.....	...	.....
tal of Behar ...	7,589	.....	7,589	74,851	89,611	13,181	1,85,232	18,253	16,435	1,49,266	1,44,361	10	14	159	.....	19,109	1,467	2,012
ORISSA.																		
ttack	690	.....	690	.....	.....	.....	690	.....	.....	.....	.....	.....	.....	.....	.....	... ..	...	.....
asore	24,888	5,501	29,320	.....	1,745	.....	30,071	7,958	325	1,004	989	.....	.....	4	.....	.....	212	.....
tal of Orissa ...	25,578	5,501	29,010	.....	1,745	.....	30,761	7,958	325	1,004	989	.....	.....	4	.....	.....	212	.....
OTA NAGPORE.																		
zaribagh ...	.....	.....	.....	.....	185	.....	185	.....	525	.....	.....	328	.....	.....	.....	.....	...	...
nbhoom ...	45	.....	45	.....	19	.....	64	.....	1,330	.....	169	.....	.....	.....	.....	.....	...	...
al of Chota Nagore.	45	.....	45	.....	204	.....	249	.....	1,855	.....	169	328	.....	.....	.....	...	...	....
nd Total of pplies from the ovinces under e Lieutenant-vernor of Bengal.	5,10,401	71,536	5,55,111	98,889	1,75,776	14,945	8,44,721	22,14,438	1,392,732	1,67,823	1,76,360	40,273	7,069	1,259	2,307	49,182	16,747	3,215
HER PROVINCES.																		
am	5	.....	5	.....	11	.....	16	8,751	900	.....	23,760	1,00,635	... ..	629	... ..	.....	...	...
th-Western Provinces and Oudh.	313	.....	313	62,903	45,928	6,883	1,16,117	. ....	420	40,075	6,220	560	59,897	1	2,647	440	1	13
jab	2	.....	2	42,520	10,642	3,081	56,251	.....	.....	.....	420	347	.....	.....	.....	.....	...	.....
ral Provinces	.....	.....	.....	2,301	1,021	.....	3,323	.....	.....	1,008	.....	... ..	... ..	.....	... ..	.....	...	.....
putana and entral India ...	.....	.....	.....	.....	.....	8	8	.....	.....	672	.....	.....	11	.....	.....	.....	...	.....
nbay	.....	... ..	.....	.....	.....	.....	... ..	.....	4,000	.....	.....	.....	4,881	.....	.....	.....	...	3
dras	.....	.....	.....	.....	8,630	.....	8,630	.....	... ..	.....	.....	39	607	.....	10	.....	210	168
rmah	.....	.....	.....	.....	1,563	.....	1,563	.....	7,200	.....	.....	2	342	1	...	8	...	19
ner places ...	12	.....	12	... ..	42	.....	54	.....	12,150	.....	.....	.....	.....	.....	27,872	.....	84	410
nd Total { 1889 Imports { Nov. 1888	5,10,733	71,536	5,55,445	2,06,709	2,43,613	24,917	10,30,682	22 23,189	1,417,402	2,16,178	2,06,766	1,51,156	72,807	1,890	32,330	49,630	17,048	3,822
	10,22,743	1,28,630	11,02,760	2,76,983	3,95,050	41,324	18,16,123	24,54,873	2,025,270	5,58,672	92,040	1,45,630	58,749	3,042	13,323	79,092	12,392	18,741

* One maund of paddy is equivalent to 25 seers of rice. † Exclusive of bags obtained by local manufacture.

The Sea-borne Trade of Calcutta in these Staples during the month of November, 1889, was as follows:—

EXPORTED FROM CALCUTTA—																		
To Indian ports, viz.—																		
Bombay	1,19,903	80	1,19,981	2,781	60	.....	1,22,822	2,436	1,542,950	.....	35,167	489	535	.....	455	.....	183	.....
Madras	.....	200	187	235	10,082	150	16,654	.....	328,350	.....	.....	.....	.....	174	10	.....	80	.....
Other ports in Madras ...	63,565	... .	63,565	.....	1,448	.....	65,013	6,320	257,650	.....	.....	3	.....	9	.....	.....	...	
Burmah	4,534	... .	4,534	243	12,153	6,770	23,702	4	216,000	... ..	20	91	120	5	595	207	...	
Other Indian ports	1,501	... ..	1,501	.....	1,007	... ..	3,108	.....	173,500	.....	.....	1	.....	.....	1,532	378	1,800	93
Pondicherry ...	.....	.....	.....	129	.....	.....	129	.....	130,000	.....	.....	.....	.....	.....	... ..	.....	1,123	131
Sind	99	.....	99	.....	.....	.....	99	.....	43,450	.....	.....	.....	.....	.....	.....	.....	...	.....
Total of Inter-portal trade ...	1,89,602	329	1,89,807	3,390	31,350	6,920	2,31,527	8,760	2,690,900	.....	35,187	684	655	188	2,592	585	3,390	442
To Foreign ports— United Kingdom	30,526	... ..	30,526	88,444	19,842	.....	1,44,812	2,14,727	753,103	1,53,507	1,47,229	1,52,127	2,700	200	.....	.....	1	6
Other Foreign ports	3,48,232	6,824	3,52,496	1,342	38,596	4,639	3,97,075	3,88,742	4,417,100	66,908	72,069	4,611	32,720	1,304	54	.....	338	131
Total of Foreign Trade	3,84,758	6,822	3,89,022	89,786	58,438	4,639	5,41,885	6,04,469	5,170,200	2,20,415	2,19,298	1,56,738	35,420	1,504	54	.....	339	136
Grand Total { 1889 of Exports { Jan. to Nov. 1888	5,74,420	7,151	5,78,989	93,176	60,788	11,559	7,73,412	6,13,229	7,861,100	2,20,415	2,54,485	1,57,322	36,075	1,692	2,646	585	3,729	578
	6,47,714	1,748	6,49,462	90,457	1,45,403	20,605	9,05,271	22,59,774	8,590,974	3,38,921	185	1,80,370	7,153	1,849	2,956	736	14,199	666

The following Statement shows the several Routes followed by the Trade in the Principal Staples of Traffic imported into Calcutta during the month of November, 1889.

IMPORTS INTO CALCUTTA.

SPECIFICATION OF ROUTES.	FOOD-GRAINS.					FIBROUS PRODUCTS.		OILSEEDS.		Tea, Indian.	Cotton, raw.	Silk, raw.	SUGAR.		TOBACCO.	
	Rice.	Paddy.	Wheat.	Gram and pulses.	Other food-grains.	Jute, raw.	Gunny-bags.	Linseed.	Mustard seed.				Drained.	Undrained.	Unmanufactured.	Manufactured.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	No.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
By country boats ...	2,41,980	41,043	43,456	92,903	5,980	7,64,215	295,187	31,485	60,231	... ..	3 980	163	3,631	26,631	7,429	2,06
,, river steamers ...	33,508	750	8,860	3,410	..	2,01,928	... ..	20,324	10,384	1,05,926	1,750	79	...	...	476	.....
,, rail { East Indian Railway.	1,84,304	23,625	1,53,139	1,20,995	18,751	24,700	33,215	1,55,733	25,854	2,541	60,901	745	525	19,535	395	24
,, rail { Eastern Bengal State Railway.	2,715	.....	1,254	14,865	136	11,19,238	1,028,125	1,008	1,289	40,507	269	898	.....	2,046	8,199	.....
,, road	25,564	1,572	.....	.. ..	.. ..	1,01,235	37,309	... ..	.....	... ..	181	.....	708	1,408	37	93
,, sea	22,472	4,746	.....	11,980	..	8,474	23,575	1,604	508	2,183	6,626	5	27,382	8	5 2	59
Grand total of Imports in November ... { 1889 ...	5,10,733	71,536	2,06,709	2 44,615	24,917	22,23,189	1,417,402	2,10,178	2,00,706	1,51,156	72,807	1,890	32,330	49,630	17,048	3,81
1888 ...	10,22,743	1,26,036	2,76,983	3 35,050	41,325	24, 4,873	2,025,270	5,58,672	92,049	1,45,650	58,719	3,042	13,323	70,092	12,392	18,74

The following Statement shows the Values, Quantities, and Numbers of the Principal Staples of Traffic exported Inland from Calcutta during the month of November, 1889.

EXPORTS FROM CALCUTTA.

Whither exported.	Cotton piece-goods.		Cotton twist.		Salt.	Gunny-bags.
	European.	Indian.	European.	Indian.		
	Rs.	Rs.	Mds.	Mds.	Mds.	No.
BENGAL.						
Burdwan ...	3,65,606	8,250	403	1,071	35,106	84,870
Beerbhoom ...	1,68,147	1,210	64	787	13,730	105,603
Midnapore ...	2,70,309	... ...	2,451	16	15,335	19,786
Hooghly ...	1,15,188	8,795	498	179	2,105	58,185
24-Pergunnahs ...	1,33,930	3,068	211	.....	11,433	7,285
Nuddea ...	3,59,015	... ..	2,798	.....	28,700	20,759
Khulna ...	80,648	.....	95	.....	5,792	... ...
Jessore ...	1,15,021	.....	846	... .	27,316	2,150
Moorshedabad ...	1,21,416	.....	74	13	18,910	7,485
Dinagepore ...	1,28,162	.....	208	... ..	10,290	4,120
Rajshahye ...	2,22,579	.....	97	... ...	17,335	4,160
Rungpore ...	6,05,241	... ...	138	... ...	16,346	420
Bogra ...	2,04,300	... ..	50	.....	7,413	17,710
Pubna ...	2,93,958	.....	282	... ..	51,950	985
Darjeeling ...	91,556	.....	89	.....	5,726	420
Julpigoree ...	2,13,086	.....	76	.....	8,490	248
Dacca ...	10,05,039	.....	1,221	294	40,481	9,465
Furreedpore ...	3,66,951	.....	864	.....	37,212	3,290
Backergunge ...	3,03,953	.....	1,173	.....	33,600	175
Mymensingh ...	2,07,315	.....	7	.....	31,445	.....
Tipperah ...	.....	.....	.....	.....	7,290	.....
Chittagong ...	87,745	.....	137	... .	200	95,400
Noakholly ...	200	.....	.....	.....	3,425	.....
Total of Bengal...	54,07,423	21,323	11,283	2,360	4,29,600	442,575
BEHAR.						
Patna ...	2,47,787	440	123	178	31,830	83,050
Gya ...	1,92,024	1,320	52	967	15,046	16,055
Shahabad ...	3,13,866	9,350	39	1,111	22,555	.....
Mozufferpore ...	1,08,549	.....	2	6	10,175	1,540
Durbhunga ...	5,47,074	1,540	20	1,153	64,071	36,505
Sarun ...	3,33,081	.....	8	36	22,031	34,335
Chumparun ...	4,14,908	.....	16	112	24,503	14,780
Monghyr ...	1,91,268	.....	2	453	10,790	24,080
Bhagulpore ...	3,53,867	1,650	62	546	36,787	58,965
Purneah ...	2,14,363	2,200	115	760	17,618	19,410
Maldah ...	.....	.....	.....	... ...	10,744	6,050
Southal Pergunnahs ...	3,52,074	330	302	1,075	15,617	61,145
Total of Behar ...	32,72,901	16,830	741	6,397	2,83,750	356,315
ORISSA.						
Cuttack ...	37,400	.....	1,556	.....	2,096	14,850
Balasore ...	65,075	.....	3,835	.....	14,957	64,250
Total of Orissa ...	1,02,475	.....	5,391	.....	17,053	79,100

Whither exported.	Cotton piece-goods.		Cotton twist.		Salt.	Gunny-bags.
	European.	Indian.	European.	Indian.		
	Rs.	Rs.	Mds.	Mds.	Mds	No.
CHOTA NAGPORE.						
Hazaribagh	67,914	6,400	.....	85	5,413	52
Manbhoom	77,931	5,060	69	1,628	5,413	59
Total of Chota Nagpore ...	1,45,845	11,550	69	1,713	10,826	1,12
Grand total of supplies into the Provinces under the Lieutenant-Governor of Bengal ...	89,88,704	49,703	17,484	10,470	7,41,220	879,110
OTHER PROVINCES.						
Assam	7,75,308	.....	994	763	49,332	2,203
North-Western Provinces and Oudh	30,40,183	7,480	2,224	1,377	37,083	347,270
Punjab	8,10,999	4,070	779	.....	.....	261,450
Central Provinces	25,830	770	170	.....	.....	23,100
Rajputana and Central India	40,698	.....	123	.....	... ...	3,600
Berar	441	... ...	.....	.....	.....	21,210
Bombay	693	.....	.....	.....	.....	1,542,950
Madras	61,915	100	1,352	389	.....	586,000
Pondicherry	2,500	.....	.....	... .	.....	130,000
Burmah	2,50,020	.....	213	1,898	3	216,000
Sind	1,260	.....	.....	... ...	.....	43,456
Other places	25,647	710	.....	15,443	64	5,170,300
Grand Total of Exports in Nov. ... { 1889 ...	1,60,23,198	62,859	23,385	28,340	8,27,711	9,226,850
1888 ...	1,90,20,346	82,199	30,524	15,031	8,71,599	10,414,380

The Sea-borne Trade of Calcutta in these Staples during the month of November 1889, was as follows:—

IMPORTED INTO CALCUTTA—	Rs.*	Rs.	Mds.	Mds.	Mds.	No.
From Foreign Ports—						
United Kingdom	98,13,843	.....	9,352	... ..	6 31,074	.....
Other Foreign ports ...	46,821	.....	196	.....	2,17,313	12,150
Total of Foreign Trade ...	98,60,664	.....	9,548	.... .	8,48,387	12,150
From Indian Ports—						
Bombay	7,142	2,42,640	29	7,719	43,190	4,000
Sind	980	3,050	.....	.....	....	.....
Madras	300	20,071	.....	253	.....	.....
Other ports in Madras ...	.....	400	.....	24	.....	... ..
Burmah	3,950	1,615	.....	.....	.....	7,
Other Indian ports ...	300	850	.....	25	....	
Total of Interportal Trade...	12,652	2,69,226	29	8,021	45,186	11,
Grand Total of Imports in Nov. ... { 1889...	98,73,316	2,69,226	9,577	8,021	8,93,573	23,
1888 ..	1,43,30,997	2,78,155	17,612	7,756	8,92,141	48,

* As per tariff declaration value.

The following Statement shows the several Routes followed by the Trade in the Principal Staples of Traffic exported fr Calcutta during the month of November, 1889.

SPECIFICATION OF ROUTES.	COTTON PIECE-GOODS.		COTTON TWIST.		Salt.	Gunny-bags.
	European.	Indian.	European.	Indian.		
	Rs.	Rs.	Mds.	Mds.	Mds.	No.
By country boats	2,30,351	8,796	1,916	16	3,07,493	108,581
,, river steamers	13,36,635	.....	2,754	1,057	40,595	85,309
,, rail ... { East Indian Railway	98,95,095	50,160	4,528	11,400	3,71,699	1,141,315
,, rail ... { Eastern Bengal State Railway	38,90,817	.....	6,711	.....	88,678	44,875
,, road	1,51,895	3,068	411	137	3,836	5,400
,, sea	5,18,475	816	7,065	15,730	15,420	7,851,100
Grand Total of Exports in November ... { 1889 ...	1,60,23,198	62,859	23,385	27,340	8,27,711	9,226,850
1888 ...	1,90,20,346	82,199	30,524	15,031	8,71,599	10,414,380

STATISTICAL DEPARTMENT,
The 15th February, 1890.

P. NOLAN,
Secretary to the Govt. of Bengal.

I.—Table showing the Monthly and Annual Rainfall at 258 *Rainfall-recording Stations in Bengal for* 1889.

District.	Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
ORISSA.														
Pooree	Pooree	—	0·17	—	—	1·08	12·31	10·58	21·16	4·02	13·01	17·65	0·21	80·8
	Khurdah	—	0·10	0·07	0·12	1·12	14·83	15·08	16·30	8·23	11·85	10·16	.	76·8
	Banpur	—	0·22	—	—	1·20	7·37	11·54	14·71	4·88	12·50	14·06	0·14	66·9
	False Point	—	2·04	—	0·68	1·13	15·18	11·48	15·79	6·10	10·30	16·58	1·04	80·3
	Gop	—	0·64	—	—			11·44	10·65	3·94	19·95		—	
	Pipli	—		—	—									
Cuttack	Jagatsingpore	—	2·43	—	—	2·11	8·70	24·03	11·98	4·55	11·80	10·41	—	70·4
	Banki	0·09	1·22	0·02	0·06	0·62	11·94	7·19	13·67	3·08	8·45	7·09	—	54·0
	Cuttack	—	0·33	0·03	0·83	3·20	18·60	12·75	14·59	5·59	8·84	11·54	—	76·3
	Kendrapara	—	1·38	0·01	0·72	2·82	13·11	16·60	15·01	5·46	8·59	10·31	0·20	74·1
	Jajpore	0·30	0·85	0·10	0·58	4·82	12·55	10·28	8·69	4·74	7·03	9·80	—	59·8
	Dharmsalla	—	0·50	0·25	1·25	2·40	12·60	9·85	12·20	5·10	8·10	9·00	—	61·2
	Salipore	—	0·90	—	0·70	1·85	16·54	15·08	16·97	3·70	7·80	10·55	—	74·0
Balasore	Chandbali	—	1·80	0·30	0·80	3·43	5·06	8·32	10·12	9·33	8·30	9·90	0·12	57·3
	Bhuddruck	0·50	0·38	1·0	—	5·36	7·03	11·02	12·14	7·93	4·73	8·23	—	60·4
	Sorah	—	1·00	0·07	1·27	5·01	4·13	8·60	8·42	5·80	6·94	6·90	—	49·0
	Balasore	—	0·72	—	1·51	4·45	4·35	4·48	11·51	4·37	12·31	6·17	—	50·0
	Jellasore	—	1·06	0·08	—	1·20	8·16	3·59	8·57	4·83	9·02	4·12	—	40·7
	Baripodah	—	1·88	0·09	1·73	4·31	13·01	9·92	13·08	5·41	5·02	4·27	—	60·5
SOUTH WEST BENGAL.														
Midnapore	Contai	—	1·78	0·16	—	1·77	11·50	5·71	13·14	9·43	5·82	7·71	0·05	57·0
	Saugor Island	—	1·51	—	—	2·13	12·39	9·02	10·70	4·96	10·91	6·60	0·03	58·2
	Tumlook	—	2·40	—	0·70	1·70	11·50	9·20	12·50	5·10	7·10	2·30	—	52·0
	Midnapore	1·67	5·60	—	1·40	2·64	9·19	7·85	13·06	7·10	2·32	4·25	—	55·0
	Ghattal	0·46	1·27	0·03	1·14	3·68	8·17	8·27	11·41	5·57	4·29	2·10	—	46·3
	Kukrahatty	0·09	2·14	—	1·09	4·34	19·05	9·31	10·97	4·00	6·43	4·05	—	62·9
	Heria	0·03	1·67	0·15	0·14	5·48	20·50	7·46	10·37	7·36	8·01	4·98	—	67·0
	Bhagwanpore	1·18	4·94	0·15	—	4·67	18·11	6·15	11·42	7·85	5·34	3·18	—	57·9
	Garbetta	0·28	1·20	—	—	3·10	13·36	12·13	8·00	6·52	0·75	2·43	—	47·7
24-Pergunnahs.	Diamond Harbour	—	1·70	0·03	1·27	5·08	17·93	10·15	13·46	5·52	5·85	5·38	0·04	66·3
	Canning Town	0·57	1·24	0·22	1·05	3·81	10·90	8·57	12·96	8·12	10·26	3·01	0·17	60·8
	Alipore Jail	0·27	2·60	1·16	2·45	3·92	12·73	12·98	8·52	5·38	4·58	3·69	—	58·2
	Barrackpore	0·10	1·52	0·31	0·83	1·62	13·42	9·52	8·35	9·50	6·74	4·64	—	54·5
	Dum-Dum	0·44	2·38	1·06	0·66	2·42	19·30	8·98	13·93	7·16	7·84	4·69	—	69·1
	Baraset	0·22	2·73	0·36	0·40	2·12	14·76	11·85	10·10	5·87	8·63	4·86	—	61·4
	Bussoorhat	0·27	1·46	0·29	0·62	1·80	13·72	12·69	9·01	8·01	12·54	3·15	—	63·5
Howrah	Howrah	0·15	2·03	0·08	1·18	2·19	17·95	12·37	9·93	7·28	6·53	2·02	—	64·1
	Mohesreka (*Ooloobariah*)	0·42	3·53	0·24	1·44	1·61	10·93	10·69	13·88	4·57	5·35	1·61	—	60·2
Hooghly	Serampore	0·27	1·85	0·32	0·89	1·90	13·76	10·43	10·15	7·48	8·75	2·74	—	58·4
	Hooghly	0·18	1·00	0·22	1·70	1·79	8·21	8·03	7·30	6·77	2·61	3·61	—	40·4
	Jehanabad	0·08	1·18	0·47	1·54	1·53	13·74	8·97	7·64	4·57	1·53	3·25	0·03	46·0
Burdwan	Culna	0·73	0·37	0·31	1·04	2·72	11·35	6·95	8·87	7·55	2·11	5·77	—	48·7
	Burdwan	0·98	0·36	0·16	1·36	4·36	11·74	9·68	5·39	9·53	1·44	4·93	—	49·3
	Cutwa	0·60	0·61	0·43	0·34	1·90	7·32	7·14	7·61	6·01	2·51	10·42	—	45·0
	Raneegunge	1·43	0·41	0·48	0·11	5·02	12·83	12·93	10·18	7·03	0·51	7·33	—	58·9
	Mankur	1·18	1·24	0·19	0·12	4·03	9·28	13·82	6·76	12·41	2·07	5·84	—	56·7
Bankoora	Bankoora	0·55	0·30	0·37	1·44	3·80	14·38	10·19	8·60	6·59	3·06	4·17	—	53·7
	Bishenpore	0·75	1·57	1·68	1·05	3·18	15·02	18·02	7·76	9·61	5·77	3·54	—	62·5
	Maliara	0·65	1·08	0·24	0·40	2·67	14·16	10·11	7·86	9·50	?	?	—	46·0
	Khatra	—	1·67	—	1·78	2·19	21·76	13·52	12·26	9·39	2·10	3·09	—	68·3
	Indas	0·14	0·54	0·27	1·88	4·78	14·65	11·01	5·25	6·04	1·00	3·39	—	48·7
	Kotalpur	1·89	0·85	0·62	1·20	2·19	14·88	14·05	6·06	7·90	Nil	2·43	—	52·0
	Anda	0·25	0·95	0·50	0·25	0·93	10·08	14·27	8·03	4·52	0·76	1·33	—	42·4
	Gangajalghati	0·53	1·33	0·23	0·25	3·06	11·67	13·39	9·26	10·78	3·65	7·36	—	61·5
	Raipore	—	0·73	0·45	0·86	1·42	17·17	14·62	10·45	5·08	5·66	3·95	—	60·3
	Sonamukhi	0·87	0·47	1·12	1·53	4·95	15·09	11·94	5·92	10·67	1·43	4·33	—	58·0
Beerbhoom	Bh. Scory	1·14	1·11	0·38	0·03	3·90	12·69	11·61	11·92	11·91	3·09	3·94	—	61·8
	Hetampore	1·36	0·87	0·41	0·12	5·30	13·30	8·36	6·16	7·69	1·71	4·56	—	49·8
	Rampore Haut	2·48	0·96	1·59	0·11	2·92	11·20	10·23	7·47	12·80	0·64	2·52	—	53·9
	Bolpore	1·45	0·73	0·49	0·18	3·85	10·52	9·81	10·76	12·74	2·67	4·62	—	57·8
	Murarai	?	?	?	—	3·86	9·07	13·75	5·90	17·23	1·76	1·78	—	53·3
Nuddea	Ranaghat	1·72	0·44	0·49	0·92	2·17	13·48	9·14	12·03	10·06	4·28	3·90	—	59·5
	Kishnaghur	1·07	0·51	0·44	0·31	1·51	9·36	8·60	4·58	5·11	4·83	8·90	—	45·3
	Chooadanga	0·94	0·80	0·95	0·75	1·95	8·93	8·16	7·05	10·00	3·72	10·45	—	51·9
	Meherpore	2·15	0·87	2·21	7·39	3·21	10·45	7·16	11·30	11·50	6·09	5·26	—	67·5
	Koushtea	0·57	0·76	—	0·85	2·83	14·07	10·11	9·14	10·94	1·91	8·96	—	59·4
Khoolna	Satkhira	0·86	0·94	1·55	0·74	1·46	11·28	11·38	9·31	6·51	9·35	3·60	0·01	57·0
	Bagirhat	0·29	0·78	0·57	3·46	0·79	14·05	10·96	9·37	5·23	10·46	2·93	0·31	59·1
	Khoolna	0·25	0·40	0·64	2·73	0·44	11·28	8·65	9·30	10·91	11·39	3·65	0·18	59·8
	Nakipur	?	?	?	?	?	?	?	?	?	?	?	0·39	?
Jessore	Narail	0·78	1·00	0·83	2·72	3·19	11·15	9·19	8·38	5·27	7·19	5·10	—	54·7
	Jessore	0·49	0·30	0·91	2·02	2·14	18·18	9·65	7·17	9·69	7·98	7·62	—	66·7
	Jhenidah	0·65	0·65	0·15	2·80	3·67	10·33	7·43	8·55	9·79	4·50	8·99	—	59·7
	Magoora	0·05	0·38	0·57	2·91	3·79	15·76	9·57	8·86	2·46	7·21	9·73	—	61·8
	Bongong	0·45	0·90	0·57	0·82	1·23	9·71	11·19	5·66	4·47	9·81	8·95	—	48·7
Moorsheda-bad	Kandi	0·76	0·89	0·84	0·10	4·82	16·12	9·57	8·91	9·75	0·51	5·70	—	57·0
	Berhampore	1·38	0·90	0·39	—	7·74	10·12	7·35	6·67	9·27	1·31	3·94	—	48·9
	Lalbagh	1·68	0·81	0·19	0·08	5·31	5·78	12·27	7·36	9·26	2·43	4·64	—	50·0
	Azimgunge	2·44	0·82	—	1·45	4·89	8·80	10·92	5·82	12·71	0·60	?	?	48·4
	Jungipore	2·97	1·00	0·06	1·47	3·29	12·91	13·30	6·15	15·40	2·10	2·16	—	60·1
	Lalgola	2·34	1·14	0·00	0·55	4·75	17·31	13·82	5·63	13·90	2·20	1·80	—	63·5
	Jugunge	1·08	0·81	0·14	0·00	4·86	7·94	9·36	6·08	12·48	0·38	2·77	—	47·4
	Akhriguni	2·36	1·41	—	—	2·73	10·24	12·02	3·93	10·00	1·02	2·97	—	46·6
	Patkabari	0·50	—	—	0·50	3·08	10·90	1·60?	3·70	?	3·80	5·50	—	
EAST BENGAL.														
Chittagong	Cox's Bazar	—	0·50	0·56	—	6·02	25·31	28·53	37·19	22·83	7·47	1·11	0·13	129·6
	Chittagong	—	0·90	0·58	3·47	4·90	18·47	11·23	25·10	13·01	3·77	1·96	0·71	84·4
	Kutubdia	—	0·53	0·30	1·26	3·22	24·16	24·08	30·20	17·45	2·86	1·73	0·05	115·4
	Satkanya	—	0·28	0·65	0·64	3·35	17·79	9·68	19·61	7·64	3·55	1·25	0·10	64·5
Chittagong Hill Tracts.	Rangamati	—	1·54	0·72	4·08	6·03	13·73	10·14	14·45	8·37	1·60	4·32	0·40	71·3
	Rema	—	1·04	0·70	—	4·00	14·40	13·05	13·35	11·27	7·33	4·45	0·95	71·7
Backergunge	Patuakhally	—	2·07	0·35	1·22	5·38	20·92	20·33	19·44	10·46	8·03	2·09	0·05	91·4
	Perosepore	0·27	0·74	0·27	3·08	2·88	21·21	18·09	13·08	4·34	16·79	2·14	0·20	70·9
	Burrisal	0·60	1·45	0·78	1·76	2·95	20·34	19·21	10·11	9·38	9·07	2·26	0·44	77·2
	Bhola	0·26	0·80	1·53	1·58	3·35	19·43	14·63	15·96	11·91	7·66	4·38	0·27	83·7
	Gournaddi	—	1·55	1·00	4·82	2·07	20·71	6·40	10·82	7·27	8·90	4·24	—	68·6
	Baupkal	0·03	1·13	0·20	1·43	3·01	25·87	15·28	27·21	13·38	7·84	1·77	0·35	97·0

District.	Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
EAST BENGAL —concluded.														
Noakholly ...	Noakholly	—	1·55	3·12	1·06	6·07	25·41	20·62	23·13	18·25	6·81	3·54	0·1	109·68
	Feuny	—	1·45	3·48	5·07	4·95	16·15	27·85	15·17	9·95	2·94	2·44	0·40	89·80
	Harishpore	—	0·84	0·56	0·13	3·00	8·24	20·43	25·81	23·38	1·66	0·47	0·39	84·90
	Ramganj	0·12	1·54	0·87	1·20	2·25	28·22	22·05	18·00	15·24	5·13	1·91	—	92·26
Furreedpore ...	Madaripore	0·40	0·66	0·26	1·69	3·24	17·76	9·52	10·77	6·11	9·90	3·94	0·00	64·31
	Furreedpore	0·70	0·62	0·36	3·31	2·02	19·10	12·79	11·87	6·90	4·09	7·23	—	69·89
	Goalundo	0·07	0·22	0·19	3·58	7·52	17·36	9·40	9·25	5·05	3·78	7·87	—	65·19
Dacca ...	Munshigunge	0·45	0·19	0·09	3·28	8·42	20·41	14·39	13·24	8·54	9·06	4·93	—	83·00
	Dacca	0·34	0·99	0·11	2·12	6·98	23·86	14·55	11·95	8·50	7·30	3·88	—	80·28
	Narsingunge	0·29	1·04	0·03	2·83	11·06	20·25	13·58	16·62	9·10	7·91	5·78	—	88·49
	Manickgunge	1·69	0·20	—	1·68	7·24	17·89	15·04	12·61	5·99	5·45	5·82	—	73·11
	Joydebpore	0·37	0·24	0·01	3·09	10·77	18·50	12·86	14·07	8·67	5·37	3·03	—	78·48
Hill Tipperah ...	Agartola	0·42	0·52	—	7·27	7·78	12·18	4·44	4·79	7·46	8·37	3·23	—	56·46
	Comillah	—	1·26	—	6·33	7·23	21·83	10·50	6·84	9·33	7·44	2·51	0·08	73·15
	Chandpore	0·68	1·04	0·90	0·94	3·65	12·50	11·51	13·58	11·61	11·08	3·40	—	70·01
	Brahmunberia	0·39	0·97	0·12	6·59	6·00	16·66	10·37	3·21	8·21	7·42	1·83	—	61·67
Tipperah ...	*Ramchandrapore*	0·02	0·08	0·05	3·42	4·83	21·57	6·66	5·29	9·01	10·41	3·93	—	65·72
	Nasirnagar	0·25	0·40	0·30	4·44	7·95	11·95	2·85	2·50	4·14	3·90	1·20	—	39·78
	Inaukandi	—	—	0·05	1·70	6·50	20·69	7·80	9·07	4·73	3·45	3·20	—	57·19
	Kasba	0·32	0·05	0·44	5·04	6·29	14·23	8·00	4·77	17·92	11·35	2·16	—	71·46
	Laksham	—	2·29	1·10	3·00	1·70	18·35	10·15	11·63	12·97	4·35	5·44	—	75·48
Mymensingh ...	Kishoregunge	0·69	0·21	—	7·80	6·93	21·06	13·19	12·59	12·57	4·88	1·90	—	81·88
	Atia (*Tangail*)	1·04	0·24	—	1·46	12·96	16·80	11·20	11·59	7·20	2·79	4·90	0·02	70·20
	Mymensingh	0·57	0·21	0·05	4·79	7·34	24·91	20·41	20·71	10·25	8·17	2·14	—	10[illegible]
	Jamalpore	1·84	0·49	—	0·92	4·83	27·52	13·50	11·97	21·74	5·67	1·02	—	89·90
	Netrokona	0·80	—	0·28	8·38	9·38	38·04	28·70	22·00	16·21	11·90	2·37	—	137·74
	Subornakhally	1·32	0·06	0·03	2·94	4·20	15·50	12·27	8·74	7·54	8·02	2·32	—	63·03
	Duryapore	1·90	0·20	—	6·01	11·41	47·03	35·03	31·33	24·90	3·10	0·50	—	102·93
	Sherepore Town	1·06	0·45	—	3·11	4·74	29·95	19·40	11·30	20·42	2·33	0·57	—	94·53
	Dewanganj	1·04	—	—	2·00	2·13		10·99	9·02	11·42	0·72	0·36	—	
NORTH BENGAL.														
Pubna ...	Pubna	0·53	0·64	0·01	2·26	3·04	15·27	7·20	7·00	9·82	1·81	8·40	0·04	56·71
	Serajgunge	2·12	0·26	—	0·94	8·24	13·50	11·00	9·03	7·40	8·20	2·75	0·13	64·56
Bogra ...	Shorepore	1·16	1·09	0·03	0·59	2·68	18·12	10·86	15·01	11·67	3·60	1·46	—	66·47
	Nowkhilla	1·44	1·15	0·05	1·34	4·77	21·11	8·72	8·14	17·26	1·24	1·09	—	66·31
	Bogra	2·02	0·44	—	—	1·14	24·16	15·40	8·25	19·26	1·34	1·20	0·03	73·25
	Panchbibi	3·23	0·55	—	—	0·66	28·03	8·40	5·94	17·13	4·07	0·47	—	68·74
Rajshahye ...	Beauleah	1·78	1·01	0·00	0·16	2·28	15·25	9·39	4·19	11·74	1·98	2·44	—	50·28
	Natore	2·70	0·35	—	1·28	0·56	21·71	14·45	7·20	9·92	2·90	3·24	—	63·41
	Naogaon	2·81	1·59	—	0·03	0·75	19·00	10·01	6·86	17·50	2·85	0·80	—	62·20
	Lalpore	0·88	0·40	—	1·62	0·90	21·04	6·84	8·68	4·89	1·39	3·33	—	40·07
	Manda	3·00	0·20	—	—	1·50	17·28	6·66	4·23	8·93	4·12	0·55	—	46·47
Maldah ...	Maldah	3·89	0·30	—	—	1·28	10·91	8·34	5·71	19·71	3·83	0·83	—	54·80
	Chanchal	2·74	0·09	0·01	—	0·13	5·04	9·06	2·30	11·08	0·29	0·18	—	31·82
	Gajol	2·59	0·05	—	—	0·43	7·56	8·61	4·64	16·05	2·50	Nil	—	43·33
	Sibgunj	2·69	0·36	0·07	0·32	2·75	11·09	8·77	6·53	15·33	5·72	1·78	—	55·21
Dinagepore ...	Mohadebpore	3·28	0·48	0·01	—	0·65	19·40	8·81	7·08	14·37	2·67	0·65	—	57·43
	Churamon	3·10	1·72	—		0·21	11·15	13·74	7·63	18·51	0·16	0·42	—	56·64
	Raigunge	3·04	1·33	0·02	—	0·10	18·59	11·42	11·52	14·30	1·27	Nil	—	56·54
	Dinagepore	2·42	0·57	—	—	1·05	23·78	11·82	12·60	18·22	0·42	Nil	—	70·88
	Baloorghat	2·05	0·51	—	—	1·02	19·10	8·34	6·92	20·57	4·38	0·26	—	64·74
	Thakoorgaon	2·47	0·57	0·20	0·08	0·93	35·65	22·97	9·08	17·52	1·27	0·05	—	91·99
Rungpore ...	Bhawanigunge (*Gyabanda*).	2·79	0·51	—	1·99	5·05	30·86	12·98	11·54	19·35	1·71	0·20	—	92·98
	Rungpore	2·75	0·03	0·40	2·03	2·61	29·99	16·53	11·89	11·78	1·60	0·04	—	81·45
	Kurigram	2·36	0·61	0·25	3·20	5·90	36·26	16·82	9·43	23·68	Nil	Nil	—	98·50
	Bagdogra (*Nilphamari*) ...	2·28	1·23	0·02	3·64	1·93	28·95	22·07	19·45	14·53	0·76	Nil	—	94·86
	Ulipore	1·50	0·78	0·05	2·10	4·02	35·19	13·11	9·50	17·41	Nil	Nil	—	84·86
Julpigoree ...	Julpigoree	2·45	0·88	—	1·13	6·56	33·81	38·38	23·17	20·12	1·35	1·03	—	128·89
	Alipore Doar	1·08	1·10	3·14	6·5[illegible]	6·37	27·30	40·00	27·80	18·13	1·84	Nil	—	133·98
	Pallacatta	1·70	0·80	0·45	4·58	10·83	22·83	47·72	3·[illegible]8	14·43	4·85	0·16	—	138·8[illegible]
	Debiganj	2·28	1·66	—	1·40	3·03	27·85	28·07	18·45	12·30	0·62	0·15	—	96·41
	Bhagatpore (*Nagrakatta*)	1·68	1·52	2·31	2·73	10·80	37·94	37·78	31·37	15·89	7·29	0·22	—	140·62
Cooch Behar ...	Dinhatta	2·16	1·10	0·56	2·44	9·01	28·95	21·11	14·09	24·94	1·92	0·13	—	106·41
	Cooch Behar	2·62	2·55	0·15	2·2[illegible]	10·60	27·07	41·47	29·70	16·19	2·45	0·40	—	136·35
	Mickligunge	1·88	2·47	0·12	1·87	3·70	30·74	34·42	28·85	10·53	1·34	0·15	—	128·07
	Matabhanga	1·72	1·95	1·11	1·21	10·93	25·18	49·05	22·17	11·54	1·01	0·21	—	126·70
Darjeeling Hill.	Buxa	2·24	2·70	6·25	2·90	17·70	37·71	71·12	38·70	25·12	6·29	0·71	0·01	211·45
	Siliguri	2·06	1·00	2·08	2·24	4·68	31·53	41·71	18·05	20·04	3·20	1·27	—	128·46
	Darjeeling	2·85	2·65	0·39	3·48	5·20	31·35	55·01	20·30	14·18	2·50	0·15	—	138·84
	Kalimpong	2·92	1·39	1·77	2·50	4·65	26·44	33·97	15·00	10·21	3·10	0·27	—	102·31
	Kurseong	?	?	?	?	8·49	33·77	71·87	36·45	19·20	3·34	0·67	—	
NORTH BEHAR.														
Purneah ...	Kissengunge	1·98	0·20	—	0·47	3·18	31·81	30·24	11·82	25·03	0·20	Nil	—	105·02
	Arrareah	2·20	0·36	—	—	1·24	26·67	19·63	14·90	17·17	Nil	Nil	—	82·16
	Purneah	2·58	0·37	0·01	—	2·88	11·41	19·57	9·20	18·88	1·81	Nil	—	66·41
	Gundara	2·98	—	—	—	1·50			9·51	11·83	2·70	Nil	—	
	Baluramporo	2·90	0·75	—	—	0·40	14·18	14·97	3·90	13·75	1·60	Nil	—	52·45
	Matiari	2·81	—	—	—	0·78	34·00	28·01	10·01	14·79		0·23	—	
	Kaliaganj	1·62	0·36	—	0·38			27·51	18·18	19·25	1·68	0·65	—	
North Behar Suiffore.	Maddapore	4·17	1·28	—	—	1·05	14·37	17·30	8·64	17·44	1·45	Nil	—	66·30
	Soopool	3·37	1·01	—	—	1·04	14·51	15·55	10·96	16·06	0·14	Nil	—	71·04
	Protabganj	2·92	0·44	—	—	0·90	31·56	29·41	13·14	12·84	Nil	Nil	—	91·21
Durbhunga ...	Tajpore	4·18	1·75	0·07	—	1·47	11·82	10·10	8·16	10·69	0·12	0·03	—	48·39
	Durbhunga	3·23	0·67	0·10	—	0·21	10·88	14·37	12·81	11·20	0·54	Nil	—	54·01
	Madhubani	2·73	0·87	—	—	2·89	14·05	15·57	12·06	17·94	Nil	Nil	—	66·71
	Bahera	3·61	0·85	0·05	—	0·92	13·54	15·86	18·73	20·75	0·14	Nil	—	74·17
	Roshera	3·33	0·90	—	—	0·90	12·24	7·63	17·61	17·56	Nil	Nil	—	60·07
Mozuffer-pore.	Sitamarhi	3·93	0·84	0·03	—	0·22	13·72	18·48	11·52	10·72	Nil	0·30	—	59·86
	Mozufferpore	3·44	1·50	0·15	—	0·45	16·77	11·79	5·40	13·88	Nil	0·12	—	53·66
	Hajipore	1·02	1·90	0·10	0·01	1·21	10·42	9·12	10·52	11·05	Nil	0·20	—	46·45
	Pora	1·48	1·89	—	—	0·60		9·24	6·78	14·52	Nil	0·14	—	
	Mahua	2·89	1·31	0·10	—	0·57		12·67	9·99	10·30	Nil	0·40	—	
	Sishar	13·87	1·25	—	—	0·29		11·29	7·32	13·15	Nil	0·45	—	
	Pupri	2·40	—	—	—	Nil	9·92	16·98	12·15	8·55	Nil	Nil	—	50·00
Chumparun ...	Motihari	2·58	1·27	0·04	—	0·53	22·79	24·82	7·50	14·16	0·38	0·62	—	78·65
	Bettiah	1·81	2·02	0·13	—	1·27	13·88	16·65	6·30	13·37	Nil	0·73	—	56·25
	Bagaha	2·89	1·24	0·09	—	2·35	15·71	21·79	14·94	13·95	Nil	1·13	—	74·09
	Burhurwa	2·88	1·24	0·40	—	2·10	12·81	15·50	8·50	12·13	Nil	0·56	—	56·21

District.	Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
NORTH BEHAR—*concld.*														
Saran ..	Gopalgunge	3·29	1·75	0·39	—	0·21	6·55	9·62	4·84	12·11	Nil	0·35	—	40·82
	Sewan	2·60	1·01	0·25	—	1·11	12·58	10·09	9·03	8·37	Nil	1·57	—	46·06
	Chuprah	2·09	1 13	0·54	—	0·27	7·76	13·88	7·88	1·004	Nil	1·21	—	44·39
SOUTH BEHAR.														
Shahabad ...	Buxar	1·33	1·22	0·04	—	0·19	9·81	16·89	11·09	6·00	1·02	2·44	—	50·03
	Dehree	0·49	1·01	1·15	—	0·25	6·27	7·42	19·21	7·00	2·34	0·87	—	45·31
	Bhaboosh	0·50	0·80	0 75	—	0·20	1·90	10·55	18 05	6·85	1·11	1·50	—	40·21
	Sasseram	0·50	0·66	1·22	—	0·21	3·10	6·30	15·24	3·07	1·03	0·44	—	31·79
	Arrah	1·04	1·03	0·18	—	0·90	8·28	13·58	13·08	5·15	0·92	0·18	—	45·39
	Mohaniah	0·60	1·20	0·51	—	Nil	2·80	—	7·00	0·55	1·80	1·50	—	
Gya ...	Aurungabad	0·65	0·90	0·27	0·14	0·03	3·09	9·22	17·03	3·46	0·41	0·38	—	37·38
	Gya	0·72	3·13	0·80	—	Nil	12·05	10·75	10·06	5·16	1·10	0·13	—	44·80
	Nowadah	2·12	0·86	0·35	—	0·14	11·49	10·87	11·01	4·86	1·16	0·06	—	32·02
	Johanabad	1·90	1·08	0·25	—	0·27	7·17	8 04	12·68	4·50	0 35	0·39	—	37·23
	Arwal	0·92	1·04	0·23	—	0·30	5·75	14 15	9·09	4·06	0·07	0·32	—	37·43?
	Daudnagar	0·40	0·45	—	—	0·50	4·22	8·11	10·20	3·03	Nil	Nil	—	27·34
	Sherrghati	1·41	1·10	—	—	0·25	9·10	6·50	6·03	5·41	1·40	Nil	—	31·80
	Rajauli	0·10	0·55	—	—	0·10	3·32	6 60	3·80	2·10	0 20	0·50	—	18·27
	Pakri Barawan	1·00	0·65	0·20	—	1·70	9·46	11·48	4·05	4·31	Nil	Nil	—	33·75
Patna ...	Patna	2·12	1·52	0·25	—	2·89	14·29	1·84	9·49	15·70	0·05	0·25	—	55·38
	Dinapore	2·00	1·21	0·38	—	0·74	10 31	13·57	10·22	10 40	0·04	0·25	—	49·07
	Behar	1·89	2·68	—	—	1·58	11·63	10·45	11·40	5·44	0·36	0·18	—	45·65
	Barrh	3 13	2·71	0·20	—	2·96	8·29	12·21	7·07	4·79	0·41	0·10	—	41·87
	Nickram	1·30	0·60	0·15	—	0 60	0·60	13·86	15·35	6 35	Nil	0 32	—	45·33
	Hilsa	1 88	2 19	0·28	—	2·83	11·05	6·83	8·12	6·18	0 08	0·12	—	39 56
Monghyr ...	Beegoosera	3 15	2 36	0·15	—	2·51	5·81	15·27	6·81	16·07	0·45	0·10	—	53·28
	Monghyr	2·30	0·92	0·10	—	0 74	10·24	8·07	11·08	11·04	Nil	Nil	—	44·99
	Jamui	2·48	1·04	0·17	—	2·01	10·80	10·58	6·79	9·00	Nil	0 21	—	43·17
	Gogri	5·45	0·63	0·09	—	1·35	12 05	13·02	18·17	13·70	Nil	Nil	—	65·36
	Sheikpura	1·45	1·10	—	—	0 60	10·31	14·12	11·27	7·02	Nil	Nil	—	45·87
South Bhagulpore.	Bhagulpore	2·03	1·70	—	—	1·61	13·04	11·20	8·30	9·97	Nil	0·04	—	48·79
	Banka	3 31	0 79	—	—	1·27	10·46	10·01	5·44	10·54	0 46	0·26	—	42·47
	Kolgong	2·32	1 14	—	—	3·01	10·65	9·71	11·38	11·20	0·20	0·02	—	50·43
	Bangaon	?	?	?	?	?	?	11 20	15·45	14·71	N.l	Nil	—	
Sonthal Pergunnahs.	Rajmehal	2·34	0·82	—	—	1·65	14·03	12·52	12 66	17·02	1·72	0·30	—	63·06
	Godda	3·65	0 88	—	—	4·90	16·16	8·55	4·25	11·91	2·54	0·73	—	53 57
	Pakour	2·82	0·78	0·04	0·49	2·25	12·48	21·15	9·43	20·14	7·45	0·91	—	77·04
	Nya Doomka	2 02	1 14	0·19	0·59	4·16	11·01	17·49	8·56	8·71	4·20	2·53	—	60·69
	Deoghur	1·49	0 45	0·17	—	0·57	5·67	1·35	8·22	10 13	2·47	1·99	—	42·51
	Jamtara	1·02	0·51	0·55	0·34	0 56	9·2	10·69	8·66	10·06	2·27	3 74	—	47·03
	Mohagama	1·42	2·45	-	—	1 05	12·47	13·21	8 81	20·09	1·66	0·18	—	61·28
	Nanihat	0·84	0 08	—	—	1·25	5·78	4·98	4·79	4·02	0·79	0·45	—	23·56
CHUTIA NAGPUR.														
Hazaribagh...	Pachamba (*Giridi*) ...	1·45	1·26	0·38	0 35	1·76	8·40	7·73	13 09	5·29	0·90	1·40	—	42·01
	Hazaribagh	0·44	0·12	0 08	0·42	0·83	10 06	12·23	13 51	7 72	3· 6	1·49	—	51·86
	Semtagurah	0·77	0·77	0 41	1·11	1·15	6 70	12·04	6·53	7·53	1·14	1 15	—	39 30
	Mahudi Hills	1·21	0·20	0·06	0 47	2·24	14·48	10·54	10 88	9 28	1·61		—	
	Jhoomra Hills	1·20	1·55	—	—	1·10	10·80	9·80	10 90	7·70	0·50	2·20	—	45·75
	Barki	0·58	1·02	0·24	—	0·43	0·56	8·2.	6 05	7·54	2 21	0 30	—	33·10
	Chatra	0·30	3·81	0·26	0·18	1·45	12·47	13 04	9·66	4 05	4 36	0·71	—	50·59
	Karagdeha	2·00	0·65	0·12	—	1·10	12·90	6·70	6 15	8·70	0·70	3·10	—	42·12
	Ranghar	—			—	Nil				11·07			—	
Lohardugga	Lohardugga	0·38	1·79	0·70	0· 8	0·70	8 12	7·61	15·87	9·86	2·63	0·45	—	48·99
	Ranchee	0·07	0·75	0·30	0·70	0·72	10·32	18·53	10·10	8·33	3 76	1·85	—	55 43
	Palamow	1·37	0 23	0·56	0·25	1·69	5·86	7 40	7·33	0·65	4·53	0·01	—	30·50
	Silli	—	0·70	0·10	0·40	1·60	0·70	3·30	12·40	7·80		1·50	—	
	Balumat				—				7·07	3·09	2·05	0·30	—	
	Hoseinabad	1·09	0·18	0·81	0·83	0·31	4·32	13·22	18·13	6·90	1·80	Nil	—	47·59
	Garwah	0·25	0·50	0 65	0·20	0·65		4 75	11·08	2·00	5·59	0 90	—	
Singbhoom ...	Chyebassa	0·21	0·33	0·32	1·19	1·06	16·37	8·79	12·55	2·81	3·84	2·44	—	50·81
	Chakradharpore	—	1·72	—	0·85	2·51	7·15	7·79	11·04	7·50	2·13	2·66	—	42·37
	Ghatsilla	0·25	0·55	—	0·94	0·95	11·82	10·47	20·03	7·38	3·06	4·99	—	60·44
	Baharagura	—	2·59	1·27	—	1·97	12 88	8·77	9·77	13·03	4·43	3·00	—	57·57
Manbhoom ...	Purulia	0·98	0 57	0·19	1·20	1·98	11·19	10·87	8·26	7·44	1·22	2·50	—	46·40
	Gobindpore	0·77	0·58	0·47	0·11	1·43	8·20	8·36	6·13	6 90	0·57	1·60	—	35·12
	Raghunathpore	0 53	2·10	0·40	0·04	1·55	6·75	13·06	9·97	7·79	0 52	6 27	—	48·98
	Barrabhoom ...	—	0·65	0 43	1·93	2·39	9·40	12 44	9·61	5·73	0·46	4·20	—	47·33
	*Jhalda**					0·89	16·93	6·19	19·65	5 01	0·78	1·97	—	
	*Chas**					0·29	16·59	11·19	14·93	10·53	1·76	2·98	--	

METEOROLOGICAL OFFICE, BENGAL,
The 18th February 1890.

A. PEDLER,
Meteorological Reporter to the Government of Bengal.

II.—Table showing the Monthly and Annual Average Rainfall at 169 *Rainfall-recording Stations in Bengal.*

District.	Station.	Number of years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
ORISSA.															
Pooree	Pooree	31—34	0·26	1·10	0·57	0·80	2·00	7·56	9·91	10·03	9·95	8·05	2·10	0·73	54·68
	Khurdah	18—19	0·27	0·72	0·82	0·76	3·34	9·10	12·55	12·56	10·36	6 80	1·81	0·50	59·31
	Banpur	10—11	0·09	0·48	0·72	0·64	2·06	7·16	10·66	12·11	8·90	6·55	3·09	1·18	54·14
	False Point	21—22	0·58	0·88	1·16	2·19	3·63	8·92	14·15	13·00	11 14	10·27	2·28	0·04	69·44
Cuttack	Jagatsingpore	16—18	0·35	0·61	0·81	0·72	2·76	7·54	10·08	11 37	8·61	6·47	1·34	0·39	51·95
	Banki	7—8	0 25	0·73	1·28	0·39	1·94	10 12	11 37	10·01	8·99	4·01	2·05	0·71	52·45
	Cuttack	28—31	0·40	0·56	1·20	1·41	3 27	10·50	12·10	11·04	9 70	5·45	1·07	0·48	58·08
	Kendrapara	18	0 44	0·73	0·87	1·06	3·94	8·52	11·79	13·24	9·14	5·94	0 95	0·48	57·10
	Jajpore	16—18	0 43	1·31	1·13	1·81	4·35	9·52	13·19	11·74	9 94	5·12	0·75	0·71	60·00
Balasore	Chandbali	15—16	0·48	1·02	1·09	1·02	4·89	7·33	11·83	11·90	11·04	6·07	1·55	0·58	58·80
	Bhuddruck	18—19	0·39	1 32	1·38	1 09	5·17	8·68	12·09	11·22	10·50	4·43	0·99	0·37	58 53
	Soorah	15 16	0·25	0·84	1·63	1·81	4·99	6·59	11·05	11·45	11·13	5·24	0·85	0·13	56·88
	Balasore	29 30	0·73	1·27	1·70	3 00	4·97	9·87	11·89	12·78	12·03	6·61	1·05	0·24	66·74
	Jellasore	15 16	0·72	1·02	0 99	1·41	3·64	7·71	15·10	11·55	10·18	4·34	0·42	0·11	57·19
	Baripada	11	0·28	0·80	1·21	1·39	4·91	10·16	12·77	12·45	11·11	3·93	0·98	0·30	60·19
SOUTH-WEST BENGAL.															
Midnapore	Contai	20—22	0·31	1·38	1·17	1·51	4·42	10·32	14·41	14·22	11·74	8·09	1·02	0·14	68·99
	Saugor Island	21—22	0·34	1 17	1·35	1·31	4·47	10 86	15·98	16·01	12 56	9·06	0·81	0·29	74·21
	Tumlook	18	0·38	1·16	1·77	1·64	4·80	8·92	12 25	14·56	8·35	4·19	0·19	0·26	58·45
	Midnapore	23—25	0 72	0·84	1·41	1·64	5·32	9·52	13·90	12·52	8·19	4·02	0·32	0·28	59·58
	Ghattal	12 14	0·51	0·80	1·68	1·81	5·14	9·79	13·62	16·05	8·08	3·32	0·15	0·27	62·15
	Garbeta	8—10	0·56	1·05	1 46	2·05	4·06	7·44	13 37	14·26	9·04	2·45	0 01	0·19	56·52
24-Pergunnahs.	Diamond Harbour	18—19	0·64	1·68	1·44	2·32	4·99	9·35	14·53	15·00	11·01	5·05	0·38	0·27	66·66
	Alipore Jail	18—19	0·71	1·47	1·09	1·81	5·20	9·79	13·37	14·22	9·90	4·50	0·42	0·33	63 30
	Barrackpore	18—19	0·55	1·27	1·72	1·81	5·17	8·89	12·40	1·57	7 44	3·33	0·59	0·30	56·03
	Dum-Dum	18—19	0·52	1·12	1·57	2·03	5·91	9·60	12 18	13·40	8·79	4·28	0·29	0·30	59 99
	Paraset	18—19	0·59	1·29	1·57	2·03	5·85	9 09	11 24	12·51	9·02	4·36	0·36	0·29	58·80
	Busseerhat	18—19	0·42	1 04	2·18	2·13	6·30	10·69	12·82	13·25	8·70	4·23	0·37	0·22	62·44
Howrah	Howrah	20—21	0 59	1·26	1·88	2·03	5·08	10·67	12·60	13·34	9·10	4·13	0·41	0·27	61·36
	Mohesreka (*Oolooberiah*)	13—14	0·51	1·44	1·18	1·47	6·03	8·04	13·48	14·90	8·33	3·33	0·45	0·30	60·06
Hooghly	Serampore	17—18	0·42	1·24	1·39	2·00	4·06	9·52	13·13	12·06	7·90	4·10	0·10	0·27	58·29
	Hooghly	24 25	0·45	1·38	1·77	2·71	5·64	10·39	12·22	13 00	7·63	3·95	0·40	0·26	59·80
	Jehanabad	17—18	0·39	1·27	1·15	1·91	5·07	9·29	12·88	10·35	9·02	4·16	0 26	0·19	62·54
Burdwan	Culna	18—19	0·46	1·08	1·39	2·39	4·78	8·36	11·26	12·00	6·54	3·74	0·58	0·21	52·85
	Burdwan	28 29	0·31	0 77	1 30	2·25	5·05	9·37	12·45	12·38	8 26	4·40	0·67	0·17	57·19
	Cutwa	18—19	0·45	1·16	1·29	1·80	5·37	9·90	10 48	12·69	8·20	3·85	0·31	0·10	53·60
Bankoora	Bankoora	31—34	0·37	1·08	1·41	1·61	3·42	9·08	12·78	12·36	8·54	4·52	0·45	0·17	56·41
	Bishenpore	10—11	0·42	0·77	1·37	1·60	4·80	10·01	12·12	15·12	9·10	2·71	0·37	0·24	58·63
	Maliara	9—10	0·35	0·67	0·67	0 87	3·25	9·14	13·94	13·84	6·52	?	?	0·21	49·46
	Khatra	9 10	0·49	0·68	1·14	0 83	3 33	11·41	15·01	14·17	9·66	3·71	0·90	0·42	61·73
	Raipur	10—11	0·32	0·85	1·17	0·85	4·00	8 71	11 79	16·74	8 90	3·55	0·68	0·30	57·74
Beerbhoom	Bh. Soory	26—29	0·46	0·92	0·67	0·94	3·20	10·10	12·64	13·17	9·77	3·59	0 16	0·16	55·88
	Hetampore	13—14	0·51	0·97	0·45	1·13	3 28	10·92	14·34	13·13	10 32	2·71	0·20	0·12	58·08
	Rampore Haut	16	0·54	0·84	0·71	1·52	3·47	9 35	11·13	13·55	11 22	3 69	0·26	0·18	56·45
	Raneegunge	19	0·33	1·19	0·65	1·26	3·09	8·43	14·06	13·04	7·14	2·25	0·21	0·12	53·08
Nuddea	Ranaghat	18—19	0·46	0·93	1·32	2·99	5·08	9·40	10·88	13·00	6·93	3·64	0 60	0·22	55·47
	Kishnaghur	25—28	0·42	1·02	1·25	2·47	6·44	9·52	10·32	11·29	7·84	4·53	0·40	0·15	57·65
	Chooadanga	18—19	0·31	1·11	1·88	2·83	7·85	8·96	10·09	12·50	9·84	4·35	0·50	0 15	60·37
	Meherpore	18—19	0·31	1·02	2·16	2·93	5·98	9·36	10 11	12·00	7·02	3·51	0·20	0 18	56·28
	Kooshtea	19	0·38	1·11	1·87	3·01	7·06	10·56	11·02	11·96	9·96	4·73	0·26	0·19	62·11
Khoolna	Satkira	18 19	0·40	0·93	2·56	2·93	5·93	12·05	13·41	12·38	8·71	4·45	0·40	0·34	64·49
	Bagirhat	17—18	0·69	1·31	1·82	3·36	6·60	12·73	14·86	12·86	9·70	5·03	0·63	0·27	69·86
	Khoolna	17—18	0·60	1·23	2·20	3·21	6·33	12·54	12·09	12·24	9·58	4·07	0·43	0·32	64·83
Jessore	Narail	17—18	0·68	1·16	1·94	3·22	6·56	10·82	9·09	10·53	7·08	3·14	0·50	0·23	54·95
	Jessore	29—34	0·51	0·85	2·14	4·44	7·40	13·13	11·70	11·76	9·24	5·36	0·87	0·19	67·61
	Jhenidah	17—18	0·34	1·10	2·19	3·36	6·47	12·45	9·75	12·55	8·71	4·58	0·33	0·17	65·00
	Magoora	17—18	0·31	1·05	2·53	3·96	7·78	11·65	10·28	9·97	7·09	3·75	0·29	0·16	59·72
Moorsheda-bad.	Bongong	19	0·33	1·10	1·79	2 74	5·64	9·62	11·20	12·97	8·34	4 60	0·34	0·34	59 01
	Kandi	13—14	0·42	0·85	0·97	1·66	4·40	9·36	12·62	11·75	8·87	3·70	0·42	0·25	55·27
	Berhampore	34 36	0·44	0·95	1·15	1·92	4·87	9·48	10·39	10·91	9·63	5·20	0 33	0·12	55·39
	Lalbagh	16	0·50	0·80	0·89	1·21	4·81	8·80	10 63	12·71	10·12	4 26	0·39	0·10	53·22
	Azimgunge	16—17	0·56	0·76	0·93	1·32	4·66	8·90	10·71	12·08	9·53	4·02	?	?	54·97
	Jungipore	18	0·44	0·71	0·65	1·20	4·82	8·53	10·97	11·79	10 04	3 49	0·11	0·14	53·49
	Lalgola	15—16	0·61	0·65	0·86	1·31	5·46	9·04	11·24	11·47	9·71	4·13	0·23	0·14	54·84
EAST BENGAL.															
Chittagong	Cox's Bazar	18—19	0·77	0·49	1·82	2·53	10·38	83·09	41·31	28·06	14·71	7·88	2·54	0·36	143 94
	Chittagong	30—34	0·51	1·19	1·94	4·62	9·19	24·93	22·18	21·19	13·75	5·96	1·59	0·57	105·57
Chittagong Hill Tracts.	Rangamati	20	0·56	1·14	2·94	4·01	9·89	18 02	18·78	18·94	12·56	6·85	1·75	0·53	95·97
	Ruma	11—12	0·68	0·61	2·38	3·30	8·55	19·42	15·53	15·39	12·29	7·39	2·37	0·59	88·50
Backergunge	Patuakhally	16—17	0·77	1·13	1·81	3·04	7·97	21·44	22·13	17·05	12·85	6·11	1·56	0·43	97·21
	Perozepore	18—19	0·71	1·30	1·61	2·65	6·70	15·98	16·46	15·13	11·15	5·49	1·15	0·27	75·06
	Burrisal	23—24	0·69	0·96	2·38	3·61	7·60	16·51	16·78	14·19	11·44	4·78	1·11	0·25	79·30
	Bhola	11—12	0·59	0·82	2·52	3·59	6·81	20 19	18·46	19·08	11·81	6·26	1·30	0·47	91·90
Noakholly	Noakholly	30—32	0·54	0·87	2·85	4·31	9·14	23·67	21·36	23·22	16·32	7·08	1·75	0·37	112·38
	Feeny	12—13	0·79	1·19	3·99	4·77	10·50	26·23	23·64	24·59	16·01	6 14	2·98	0·84	121·67
Furreedpore	Madaripore	18—19	0·61	0·97	2·83	3·62	8·82	18·09	12·59	1·20	8·30	4·02	0·51	0·13	67·69
	Furreedpore	22	0·34	1·29	2·78	4·07	8·43	12·85	12·67	12·21	9·39	4·32	0·48	0·12	65·95
	Goalundo	17—18	0·40	1·22	2·33	3·93	7·43	11·07	11·89	11·54	8·11	4 00	0·53	0·15	62·98
Dacca	Munshigunge	16—17	0·54	1·35	3·95	4·82	9·05	16·17	16·12	14·72	12·20	5·24	0·85	0·31	85·32
	Dacca	38—40	0·30	1·01	2·63	5·81	9·03	13·00	12·90	12·39	9·95	5·09	0·67	0·21	73·05
	Naraingunge	6—7	0·31	1·16	3·11	4·78	8·20	14·12	15·32	12·18	10·35	4·45	1·28	0·29	75·50
	Munickgunge	16—17	0·44	1·15	1·99	3·97	8·06	9·62	12·11	11·71	7·88	3·78	0·39	0·12	61·82
Hill Tipperah	Agartola	16—17	0·83	1·12	4·86	5·28	11·00	14·21	11·63	13·77	10·15	4·45	0·92	0·39	78·61
Tipperah	Comilla	31—32	0·60	0·89	3·07	6·53	10·37	18 34	17·00	16·77	11·43	5·24	1·26	0·25	92·65
	Chandpore	11—12	0·53	0·89	3·30	4·30	8·63	16·78	15·11	13·53	11·80	6·48	0·81	0·30	88 50
	Brahmunberia	18—19	0·77	1·30	4·68	5·06	11·02	15·53	11·17	12·96	11 61	4·69	0·55	0·20	79·60
Mymensingh	Kishoregunge	18—19	0·87	0·86	3·01	5·09	10·85	18·86	13·93	13·12	12·24	5 18	0·42	0·30	83·34
	Atia	18—19	0·39	1·18	1·45	3·51	6 89	12·77	11·17	11·96	9·47	4·99	0·23	0·09	64·01
	Mymensingh	27—29	0·35	1·19	2·23	5·44	12·02	20·59	16·09	14·52	14·03	5·30	0·72	0·12	92 69
	Jamalpore	18—19	0·43	1·07	1·46	3·26	9·12	15·24	12·47	13·71	13·70	4·80	0·29	0·26	75·87
	Netrokona	7—8	0·14	0·46	2·57	4·24	11·32	21·20	15·73	10·79	14·07	6·31	0·33	0·15	93·81

District.	Station.	Number of years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
NORTH BENGAL.															
Pubna	Pubna	25—27	0·30	1·13	1·77	3·11	6·81	11·54	10·71	12·67	11·06	4·57	0·33	0·11	64·20
	Serajgunge	18-19	0·45	1·01	1·33	2·78	7·83	11·10	10·95	11·32	9·48	4·29	0·37	0·14	60·95
Bogra	Sherpore	12—13	0·35	0·90	1·48	1·54	8·47	11·71	12·71	12·29	9·94	3·95	0·61	0·22	64·17
	Nowkhilla	12—13	0·36	0·85	1·21	1·99	7·79	12·04	11·47	10·80	9·42	4·76	0·54	0·16	61·99
	Bogra	26—29	0·43	0·97	0·88	3·27	8·79	15·09	15·83	12·20	11·76	4·53	0·76	0·12	74·69
	Panchbibi	12—13	0·32	0·52	0·96	1·60	7·65	11·03	12·40	11·43	10·41	3·99	0·66	0·18	60·40
Rajshahye	Beauleah	30—34	0·29	0·89	1·23	1·73	5·59	10·51	11·49	10·74	10·85	4·77	0·27	0·08	58·44
	Nattore	18—19	0·60	0·89	0·93	2·17	6·79	9·98	12·90	12·32	11·78	4·26	0·26	0·11	62·24
	Noagaon	6—7	0·77	0·41	1·27	0·63	5·36	13·36	10·53	9·02	12·68	2·29	0·17	0·17	56·66
Maldah	Maldah	31—33	0·64	0·73	0·85	1·35	3·87	9·83	10·74	10·27	10·78	4·23	0·21	0·33	53·83
	Chanchal	11—13	0·51	0·60	0·45	1·01	4·80	11·05	12·37	13·73	10·25	3·02	0·26	0·07	58·68
Dinagepore	Mohadebpore	11—12	0·57	0·51	0·70	0·90	0·24	12·80	10·81	12·65	11·59	3·00	0·14	0·16	60·16
	Churamon	10—11	0·63	0·47	0·43	0·63	4·70	11·93	11·90	10·65	12·59	2·42	0·18	0·14	56·67
	Raigunge	12—13	0·57	0·50	0·62	1·12	6·39	13·74	12·69	12·55	10·35	3·56	0·10	0·14	62·33
	Dinagepore	20—31	0·28	0·57	0·79	2·27	7·03	16·84	14·99	13·21	12·02	4·72	0·22	0·10	74·54
	Baloorghat	8	0·62	0·29	0·58	0·95	5·89	12·47	10·03	9·12	10·92	3·40	0·11	0·22	54·60
Rungpore	Bhawanigunge (*Gyabanda*)	18	0·34	0·51	1·46	2·73	9·11	15·69	11·91	10 29	11·67	4·85	0·13	0·16	68·83
	Rungpore	28—32	0·14	0·38	1·15	3·08	10·07	21·03	15 77	13·00	13·06	4·76	0·30	0·12	83·76
	Kurigram	13—14	0·51	0·31	1 03	4 79	13 58	24·01	13·37	10 86	12·71	4·19	0·22	0·23	86·70
	Bogdogra (*Vilphamari*)	12—14	0·50	0·52	1·18	3·43	11·87	25·33	13·58	15·17	14·83	3·89	0·06	0·19	90·57
Julpigoree	Julpigoree	19—20	0·54	0·30	1·89	3·96	11·48	20·12	20·06	25·01	23·59	5·25	0·10	0·08	123·28
Cooch Behar	Dinhatta	12—13	0·54	0·34	1·61	4·18	14·37	31·23	16·19	15·70	21·20	4·74	0·05	0·19	110·84
	Cooch Behar	17—18	0·43	0·20	1·93	5·46	14·57	30·02	22·35	21·03	21·46	5·21	0·11	0·10	129·56
	Mickligunge	12—13	0·27	0·28	1·39	4·79	13·01	27·51	21·24	22·02	22·89	4·21	0·05	0·16	117·82
	Matabhanga	12—13	0·34	0·29	2·29	4·54	12·96	32·23	21·18	22 35	22·74	5·24	0·05	0·12	124·33
Darjeeling Hill.	Buxa	19—20	1·12	0·92	3·16	8·79	20·93	44·19	47·68	43·60	31·85	0·96	0·50	0·57	213 27
	Siliguri	6—7	0·91	0·27	1·71	3·18	8·80	25·89	27·61	21·83	14·93	4·34	0·32	0·09	109·88
	Darjeeling	28 -31	0·69	1·14	2·28	3·93	7·57	24·02	30·36	26·67	17·42	6 10	0·23	0·21	120·51
	Kalimpong	8	1·29	0·73	1·75	2·99	5 01	18 73	23·61	20·41	10·55	4·09	0·26	0·26	90·58
NORTH BEHAR.															
Purneah	Kissengunge	17—18	0·62	0·44	0·66	1·87	6·45	15·39	16·49	15·71	13·79	3·13	0·07	0·14	74·73
	Arrareah	16—18	0·51	0·53	0·62	1·59	5·77	12 99	16·18	13·50	13·28	3·33	0·06	0·09	68·36
	Purneah	18—19	0·47	0·55	0·40	1·40	4·49	10·86	14·13	14·40	13·47	3·76	0·08	0·15	64·16
North Bhagulpore.	Maddapore	18 -19	0·47	0·56	0·39	1·03	4·31	8·33	12·01	11·86	10·29	4·32	0·06	0·08	53·71
	Soopool	17—18	0·47	0·39	0·40	0·88	3·08	8·97	11·34	11·88	9·40	2·72	0·05	0·12	50·60
Durbhunga	Tajpore	18	0·64	0·38	0·23	0·32	2·27	7·46	12·51	10·49	8·00	3·00	0·10	0·02	45·28
	Durbhunga	18	0·52	0·43	0·29	0·69	2·61	7·84	12·02	11·14	9·33	2·82	0·08	0·17	47·93
	Madhubani	17—18	0·74	0·41	0·37	1·06	3·03	8·45	10·84	10·47	9·90	2·48	0·03	0·07	47·85
Mozufferpore	Sitamarhi	18	0·53	0·30	0·65	1·18	2·64	7·84	10·87	0·52	9·23	2·65	0·01	0·12	45 56
	Mozufferpore	30—34	0·89	0·40	0·46	0·52	2·36	6·81	10·94	10·25	8·23	2 87	0·08	0·08	43·09
	Hajipore	17—18	0·65	0·46	0·38	0·19	2·03	6·54	12·21	10·64	7·10	3 76	0·14	0·12	44·22
Chumparun	Motihari	29—31	0·47	0·28	0·51	0·64	2·44	8·25	10·96	12·23	8·69	3·56	0·09	0 15	48·26
	Bettiah	17—18	0·69	0·41	0·30	0·75	2 66	8·35	12·99	12·12	9·32	3·38	0·01	0·23	51·27
Sarun	Gopalgunge	10—12	0·84	0 53	0·14	0·22	2·66	6·43	12·51	10·16	7·30	4·59	0·13	0·16	45·73
	Sewan	19—19	0·75	0·18	0·23	0·27	1·80	6·68	11·08	10·89	8·83	3·51	0·11	0·14	45·05
	Chuprah	33 36	0·71	0·43	0·38	0·38	1·44	6·17	10·85	9·35	7 21	2 93	0·21	0·09	40·15
SOUTH BEHAR.															
Shahabad	Buxar	20—21	0·79	0·32	0·27	0·16	0·99	4·76	11·07	10·06	7·43	3·20	0·14	0·21	39·40
	Dehree	6 - 7	0·73	0·23	0·70	0·11	3·20	3·71	11·01	12·59	7·67	2·89	0·25	0·57	43·66
	Shubcoah	18—19	0·08	0·40	0·50	0·14	1·12	5·06	12·37	12·00	6·70	3·11	0·50	0·35	43·08
	Sasseram	18—19	0 50	0·48	0·30	0·17	1·12	5·00	11·58	12·25	6·95	3·48	0·24	0·28	42·35
	Arrah	30—33	0 83	0·54	0·40	0·00	1·53	6·45	12·02	10·35	8·35	2·94	0·21	0·14	44·95
Gya	Aurungabad	17—19	0·61	0·34	0·38	0·23	1·03	5·21	12·39	12 09	7·15	2·64	0·23	0·30	44·15
	Gya	27—29	0·73	0·50	0·42	0·32	1·25	6·15	11·81	10·61	7·15	2·34	0·24	0·19	41·69
	Nowadah	18—19	0·70	0·46	0·47	0·30	1·91	5·36	11·87	11·48	6·84	2·50	0·18	0·22	42·29
	Jehanabad	16	0·72	0·40	0·35	0·15	1·65	4·91	12·23	12·90	5·72	3·33	0·27	0·18	42·81
Patna	Patna	33—36	0·69	0·47	0·34	0·27	1·74	6·72	10·60	10·00	7·07	2·81	0·23	0·16	41·90
	Dinapore	18—19	0·59	0·30	0·18	0·23	1·05	6·40	11·71	11·50	6·62	3·00	0·14	0·18	42·50
	Behar	18—19	0·67	0·52	0·34	0·28	2·16	6·17	13·04	11·33	6·38	3·06	0·26	0·13	44·28
	Barrh	18—19	0·47	0·43	0·34	0·12	2·32	4·88	12·73	9·80	7·38	3·03	0·25	0·12	42·37
Monghyr	Becgooserai	18—19	0·56	0·53	0·24	0·36	2·35	6·01	11·39	10·33	7·29	3·00	0 31	0·08	42·45
	Monghyr	34—37	0·45	0·64	0·43	0·45	2·12	6·59	11·72	10·72	8 44	3·81	0·26	0·10	45·73
	Jamui	17—19	0·71	0·60	0·43	0·50	2·13	6·35	12·30	12·14	7·29	2 53	0·09	0·09	45·16
South Bhagulpore.	Bhagulpore	34—35	0·50	0·64	0·39	0·84	2·07	8·14	11·56	10·80	7·92	3·03	0·22	0·09	47 70
	Banka	18—19	0·59	0·50	0·34	0·56	2·57	7·50	10·42	11·55	8·03	3·43	0 15	0·14	45·78
Southal Perguunahs.	Rajmehal	17—19	0·19	0·46	0·33	1·04	4·93	10·02	12·91	10·63	11·86	3·03	0·23	0·06	55·69
	Godda	16—17	0·35	0·54	0·40	0·49	3·55	6·70	11·21	11·95	9·53	2·94	0·10	0·13	47·89
	Pakour	11—12	0·53	0·67	0·57	0·44	4·68	10·83	13·36	11 2	13·16	4·45	0·17	0·14	62·35
	Nya Doomka	18	0·55	0·68	0·72	1·05	5·03	8·79	13·49	14·07	10·27	3 88	0·23	0·23	57·89
	Deoghur	19—20	0·43	0·63	0·64	0·80	3·01	8·12	13·64	12·37	8·64	4·36	0 15	0·16	52·89
	Jamtara	13—15	0·45	0·50	0·77	0·61	3·39	7·90	13·54	13·24	7·83	3·03	0·30	0·14	51·70
CHUTIA NAGPORE.															
Hazaribagh	Pachamba (*Giridi*)	18—19	0·39	0·69	0·65	0·64	2·25	7·64	13·29	12·94	8·66	3·21	0·20	0·17	50·93
	Hazaribagh	27—29	0·55	0·74	0·69	0·35	1·72	7·94	13·01	13·14	7·83	3·29	0·32	0·22	49·79
	Semtagurah	11—12	0·51	0·52	1·18	0·30	2·58	7·61	12·78	12·28	8·04	2·81	0·39	0·29	49·29
	Mahudi Hills	10—11	0·83	0·58	0·74	0·10	2·31	7·30	12·43	14·35	8·94	2·47		0·27	
	Jhoomra Hills	8—9	0·55	0·41	0·64	Nil	2·90	9·89	16·46	17·08	10·91	2·93	0·48	0·39	69·84
Lohardugga	Lohardugga	6	0·98	0·57	0·63	0·26	2·53	7·75	12·11	14·05	9·70	2·37	0·30	0·51	51·96
	Ranchee	31—33	0·79	1·02	1·30	0·62	2·36	7·64	12·42	12·37	8·19	3·05	0·29	0·21	50·16
	Palamow	18—19	0·77	0·50	0·65	0·29	1·55	5·91	12·91	12·03	7·95	2·66	0 43	0·28	45·73
Singbhoom	Chyebassa	19—20	0·73	0·84	1·21	0·68	3·89	8·01	14·00	13·78	8·89	2·94	0·24	0·35	54·96
Manbhoom	Purulia	24—26	0·42	0·94	0·89	0·81	2·76	8·77	11·44	12·96	7·80	3·60	0·18	0·26	50·83
	Gobindpore	17—18	0·51	0·88	0·44	0 63	2·00	7·00	11·87	12·49	7·22	4·00	0·12	0·19	47·35

METEOROLOGICAL OFFICE, BENGAL;
The 18th February 1890.

A. PEDLER,
Meteorological Reporter to the Government of Bengal.

III.—Comparison Table of the Rainfall of 1889 *at* 169 *Rainfall-recording Stations in Bengal with the Average of previous years.*

District.	Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
ORISSA.														
Pooree	Pooree	−0·26	−0·33	−0·57	−0·86	−1·00	+4·75	+0·07	+10·21	−5·30	+4·96	+15·55	−0·52	+26·12
	Khurdah	−0·27	−0·62	−0·75	−0·54	−2·22	+5·73	+2·53	+2·72	−2·13	+5·25	+8·35	−0·50	+17·55
	Banpur	−0·09	−0·76	−0·72	−0·84	−0·80	+0·41	+0·88	+2·60	−4·02	+5·05	+11·07	−1·04	+12·78
	False Point	−0·58	+1·16	−1·18	−1·51	−2·80	+6·26	−2·67	+2·19	−5·04	+0·03	+14·30	+0·40	+10·88
Cuttack	Jazatsingpore	−0·35	+1·82	−0·81	−0·72	−0·65	+1·25	+13·35	+0·61	−4·06	+5·33	+9·07	−0·39	+24·45
	Hanki	−0·16	+0·49	−1·21	−0·33	−1·32	+1·82	−4·18	+8·66	−5·11	+3·84	+5·04	−0·71	+1·58
	Cuttack	−0·40	−0·23	−1·17	−0·58	+0·02	+8·10	+0·33	+2·95	−4·11	+3·39	+10·47	−0·48	+18·29
	Kendrapara	−0·44	+0·05	−0·86	−0·34	−1·12	+4·59	+4·81	+1·77	−3·68	+2·56	+9·36	−0·23	+17·08
	Jajpore	−0·13	−0·46	−1·03	−1·23	+0·47	+3·03	−2·91	−3·05	−5·20	+1·01	+9·14	−0·71	−0·17
Balasore	Chandbali	−0·48	+0·78	−0·79	−0·22	−1·46	−2·27	−3·51	−1·78	−1·71	+2·23	+8·41	−0·16	−1·26
	Bhuddruck	+0·11	−0·94	+0·24	−1·99	+0·19	−0·75	−0·47	+0·02	−2·57	+0·30	+7·24	−0·37	+1·80
	Soreh	−0·25	+0·76	−0·98	−0·56	+0·02	−2·16	−3·35	−3·03	−5·31	+1·70	+8·05	−0·13	−7·24
	Balasore	−0·73	−0·55	−1·70	−1·40	−0·52	−5·52	−7·41	−1·27	−4·28	+5·70	+5·32	−0·24	−16·67
	Jellasore	−0·72	+0·04	−0·91	−1·41	−2·44	+0·46	−11·51	−2·78	−5·05	+4·08	+3·80	−0·11	−15·56
	Haripodah	−0·28	+1·08	−1·12	+0·34	−0·61	+3·75	−2·85	+1·51	−3·70	+1·09	+3·29	−0·20	+0·32
SOUTH-WEST BENGAL.														
Midnapore	Contai	−0·31	+0·40	−1·01	−1·51	−2·05	+1·18	−8·70	−1·08	−2·31	−2·27	+6·09	−0·20	−11·66
	Saugor Island	−0·34	+0·34	−1·35	−1·31	−2·34	+1·51	−6·06	−5·31	−7·60	+1·85	+5·70	−0·26	−15·96
	Tumlook	−0·38	+1·24	−1·77	−0·94	−3·10	+2·58	−3·05	−2·06	−3·24	+2·91	+2·11	−0·26	−5·95
	Midnapore	+0·95	+4·76	1·41	−0·24	−2·68	−0·33	−6·05	+0·54	−1·09	−2·00	+3·96	−0·28	−4·80
	Ghattal	−0·05	+0·38	−1·50	−0·07	−1·46	−1·02	−5·35	−4·04	−3·41	+0·07	+1·05	−0·27	−15·76
	Garbetta	−0·24	+0·17	−1·46	−2·05	−0·90	+5·92	−1·24	−6·20	−2·52	−1·70	+1·82	−0·19	−8·75
24-Pergunnahs.	Diamond Harbour	−0·64	+0·11	−1·41	−1·05	+0·00	+8·58	−4·38	−1·54	−5·49	+0·80	+5·00	−0·23	−0·16
	Alipore Jail	−0·44	+1·13	−0·53	+0·04	−1·37	+2·94	−0·39	−5·71	−4·52	+0·28	+3·27	−0·33	−5·02
	Barrackpore	0·35	+0·25	−1·41	−0·98	−3·55	+4·53	−2·97	−4·22	+2·06	+3·41	+2·05	−0·30	−1·48
	Dum-Dum	−0·08	+1·26	−0·51	−1·37	−3·49	+0·71	−3·20	+0·53	−0·84	+3·56	+3·80	−0·40	+9·13
	Baraset	−0·37	+1·44	−1·21	−1·03	−3·73	+5·07	+0·61	−2·41	−3·15	+4·27	+4·00	−0·20	+2·30
	Bussoerhat	−0·15	+0·42	−1·89	−1·51	−4·59	+3·03	0·13	−4·24	−0·39	+8·31	+4·78	−0·22	+1·72
Howrah	Howrah	−0·44	+1·37	−0·90	−0·85	−2·80	+7·26	−0·23	−3·41	−1·82	+3·40	+2·51	−0·27	+2·75
	Mohesreka (*Ootooberiah*)	−0·09	+2·09	−0·94	−0·03	−4·42	+2·20	+3·21	−1·02	−3·76	+2·02	+1·10	−0·30	+0·21
Hooghly	Serampore	−0·15	+0·41	−1·07	−1·12	−2·07	+4·24	−2·70	−2·81	−0·12	+4·65	+2·34	−0·27	+0·13
	Hooghly	−0·27	−0·38	−1·57	−1·01	−3·85	2·18	−4·15	−5·70	−0·86	−1·34	+2·21	−0·26	−15·40
	Jehanabad	+0·29	−0·09	−0·68	−0·37	−3·04	+4·45	−3·91	−8·81	−5·05	−2·63	+2·99	−0·16	−17·51
Burdwan	Culna	+0·27	−0·71	−1·08	−1·35	−2·26	+2·60	−5·31	−6·19	+1·01	−1·63	+5·19	−0·21	−9·08
	Burdwan	+0·02	−0·41	−1·14	−0·87	−0·69	+2·37	−2·05	−4·99	+1·27	−2·96	+4·36	−0·17	−7·88
	Cutwa	+0·15	−0·56	−0·86	−1·46	−3·47	−2·58	−3·54	−4·88	−2·19	−1·34	+10·11	−0·10	−10·32
Bankoora	Bankoora	+0·18	−0·69	−0·84	−0·17	+0·38	+4·70	−2·59	−3·76	−1·07	−1·46	+3·73	−0·17	−2·17
	Bishenpore	+0·33	+0·80	+0·51	−0·55	−1·02	+5·01	+0·30	−7·57	+0·51	+3·06	+3·17	−0·24	+3·91
	Maliara	+0·30	+0·41	−0·43	−0·47	−0·58	+5·02	3·83	−5·98	+2·08	?	?	−0·21	−2·70
	Khatra	−0·49	+1·01	−1·14	+0·05	−1·14	+0·35	−1·49	−1·91	−0·27	−1·61	+2·79	−0·42	+0·63
	Raipur	−0·32	−0·12	−0·72	+0·01	−2·58	+8·46	+2·83	−0·29	−3·82	+2·11	+3·29	−0·20	+2·05
Beerbhoom	Bh. Soory	+0·06	+0·18	−0·11	−0·91	+0·01	+2·19	−1·03	−1·25	+2·14	−0·50	+3·78	−0·16	+5·97
	Hetampore	+0·85	−0·10	0·00	−1·01	+2·02	+2·38	−5·98	−5·07	−2·04	−1·00	+4·36	−0·12	−5·25
	Rampore Haut	+1·95	+0·12	+0·88	−1·41	−0·55	+1·85	−0·90	−6·08	+1·68	−3·05	+2·26	−0·18	−3·53
	Raneegunge	+1·10	−0·78	−0·17	−1·15	+1·93	+4·40	−1·13	−3·76	−0·11	−2·73	+7·12	−0·12	+4·00
Nuddea	Ranaghat	+1·20	−0·49	−0·83	−2·07	−2·91	+4·08	−1·74	−0·07	+4·03	+0·04	+3·30	−0·22	+4·08
	Kishnaghur	+0·65	−0·51	−0·81	−1·86	−4·83	−0·16	−1·72	−6·71	−2·73	+0·30	+8·56	−0·18	−10·17
	Chooadanga	+0·61	−0·31	−0·93	−2·08	−5·40	−0·03	−1·93	−5·46	+0·10	−0·63	+10·15	−0·15	−0·47
	Meherpore	+1·84	−0·15	+0·05	+4·46	−2·77	+1·09	−2·85	−1·30	+3·58	+2·58	+5·06	−0·18	+11·31
	Koushtea	+0·19	−0·35	−1·87	−2·16	−4·23	+3·51	−0·91	−2·82	+0·98	−2·82	+8·00	−0·19	−2·67
Khoolna	Satkira	+0·46	0	−1·01	−2·19	−4·47	−0·77	−2·03	−3·07	−2·18	+4·90	+3·30	−0·33	−7·49
	Bawirhat	−0·40	−0·53	−1·25	+0·10	−5·81	+1·32	−4·09	−3·49	−4·47	+5·43	+2·30	+0·04	−10·76
	Khoolna	−0·35	−0·77	−1·50	−0·48	−5·80	−1·26	−3·41	−2·04	+1·33	+7·32	+3·21	−0·14	−4·97
Jessore	Narail	+0·05	−0·16	−1·11	0·50	−3·37	+0·33	+0·10	−2·15	−1·81	+4·05	+4·60	−0·23	−0·20
	Jessore	−0·02	−0·55	−1·23	−1·82	−5·26	+5·05	−2·05	−4·59	+0·43	+2·62	+6·75	−0·19	−0·80
	Jhenidah	+0·31	−0·45	−2·04	−0·76	−3·40	−2·12	−2·32	−4·00	+1·08	−0·08	+8·06	−0·17	−5·29
	Magoora	+0·34	−0·67	−1·90	−1·05	−3·89	+4·11	−0·71	−1·11	−5·53	+3·46	+9·44	−0·16	+2·17
	Bongong	+0·12	−0·20	−1·22	−1·92	−4·41	+0·09	−0·02	−7·31	−3·87	+5·21	+3·61	−0·34	−10·26
Moorsheda-bad.	Kandi	+0·54	+0·04	−0·13	−1·56	+0·42	+6·70	−3·05	−2·84	+0·88	−3·19	+5·28	−0·25	+2·70
	Berhampore	+0·94	−0·05	−0·86	−1·92	+2·87	+0·64	−3·04	−4·24	−0·36	−3·80	+3·61	−0·12	−6·42
	Lalbagh	+1·78	+0·01	−0·70	−1·13	+0·78	−3·02	+1·04	−5·35	−0·86	−1·83	+4·25	−0·10	−5·13
	Azimgunge	+1·89	+0·06	−0·83	+0·13	+0·23	−0·10	+0·21	−0·86	+3·18	−4·32	?	?	−6·82?
	Jungipore	+2·83	+0·20	−0·80	+0·27	−1·83	+4·38	+2·33	−5·64	+4·76	−1·30	+2·05	−0·14	+7·41
	Lalgola	+1·73	+0·49	−0·80	−0·76	−0·71	+8·27	+2·58	−5·84	+4·25	−1·93	+1·58	−0·14	+8·72
EAST BENGAL.														
Chittagong	Cox's Bazar	−0·77	+0·01	−1·26	−2·53	−5·36	−7·78	−12·78	+0·13	+8·12	−0·41	−1·48	−0·23	−14·29
	Chittagong	−0·51	−0·29	−1·36	−1·15	−4·29	−4·46	−10·00	+3·91	−0·14	−2·19	+0·07	+0·14	−21·17
Chittagong Hill Tracts.	Rangamati	−0·56	+0·40	−2·22	+0·07	−3·86	−4·29	−2·04	−4·49	−4·19	−5·25	+2·57	−0·13	−24·59
	Ruma	−0·68	+0·43	−1·68	−3·30	−3·05	−5·02	−2·48	−1·74	−1·02	−0·06	+2·08	+0·36	−16·70
Backergunge	Patuakhally	−0·77	+1·54	−1·46	−1·82	−2·19	−0·52	−1·30	+1·49	−2·39	+1·92	+0·53	−0·10	−5·77
	Perozepore	−0·44	−0·56	−1·34	+0·43	−4·43	+5·23	−3·37	−8·05	−6·81	+11·36	+4·99	−0·07	−2·14
	Burrisal	−0·09	+0·49	−1·60	−1·85	−4·65	+3·73	−4·57	+2·92	−2·05	+4·29	+1·15	+0·19	−2·05
	Bhola	−0·33	−0·02	−0·99	−2·01	−2·98	−0·76	−3·83	−2·12	+0·10	+1·40	+3·38	−0·20	−8·56
Noakholly	Noakholly	−0·54	+0·68	+0·27	−3·28	−3·37	+1·74	−0·74	−0·09	+1·93	−0·87	+1·79	−0·25	−2·70
	Fenny	−0·79	+0·26	−0·54	+0·80	−5·55	−10·08	+4·19	−9·42	−6·06	−3·20	−0·54	−0·44	−31·87
Furreedpore	Madaripore	−0·21	−0·31	−2·57	−1·93	−5·58	+4·67	−3·07	−1·43	−2·19	+5·88	+3·43	−0·07	−3·38
	Furreedpore	+0·86	−0·67	−3·42	−0·76	−5·51	+6·25	+0·12	−0·34	−2·49	−0·23	+0·75	−0·12	+0·94
	Goalundo	+0·57	−1·00	−2·14	−0·35	+0·09	+6·29	−2·49	−2·29	−3·06	−0·82	+7·54	−0·15	+2·21
Dacca	Munshigunge	−0·09	−1·16	−3·86	−1·54	−0·63	+4·24	−1·73	−1·48	−3·66	+3·82	+4·08	−0·31	−2·32
	Dacca	+0·04	−0·02	−2·52	−3·09	−2·05	+10·84	+1·59	−0·44	−1·45	+2·21	+2·01	−0·21	+7·23
	Narsingunge	−0·02	−0·12	−3·08	−1·90	+2·86	+6·13	−1·74	+4·44	−1·25	+3·46	+4·50	−0·29	+12·90
	Manickgunge	+1·25	−0·95	−1·99	−2·29	−1·43	+8·27	+2·93	+0·90	−1·89	+1·07	+4·93	−0·12	+11·29
Hill Tipperah	Agartola	−0·41	−0·60	−4·86	+1·99	−3·12	−2·03	−7·19	−8·98	−2·60	+3·92	+2·31	−0·39	−22·15
Tipperah	Comilla	−0·60	+0·37	−3·07	−0·20	−3·14	+5·49	−7·00	−9·93	−2·10	+2·20	+1·25	−0·17	−19·50
	Chandpore	+0·15	+0·15	−2·40	−3·40	−4·97	−4·28	−3·00	−5·94	−0·19	+4·60	+2·65	−0·35	−17·59
	Brahmunberiah	−0·38	−0·33	−4·56	+1·53	−5·02	+1·13	−0·90	−9·75	−3·40	+2·73	+1·28	−0·26	−17·93

District.	Station.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
EAST BENGAL —*concluded.*														
Mymensingh	Kishoregunge...	+0·12	−0·65	−3·01	+2·86	−3·92	+2·20	+0·26	−0·53	+0·33	−0·30	+1·48	−0·30	− 1·46
	Atia	+0·65	−0·94	−1·45	−2·05	+6·07	+4·03	+0·09	−0·37	−2·27	−2·11	+4·67	- 0·07	+ 6·35
	Mymensingh	+0·32	−0·98	−2·18	- 0·65	−4·68	+4·32	+4·32	+6·19	+2·32	+2·78	+1·48	−0·12	+13·86
	Jamalpore	+1·41	−0·58	−1·46	−2·34	−4·29	+12·29	+1·03	−1·74	+8·04	+0·81	+0·73	−0·24	+13·63
	Netrokona	+0·16	−0·46	−2·29	+4·14	−1·79	+10·84	+12·97	+5·21	+2·14	+5·09	+2·04	−0·15	+43·90
NORTH BENGAL.														
Pubna	Pubna	+0·14	−0·40	−1·73	−0·85	−3·17	+3·73	−3·51	−5·61	−1·24	−2·76	+3·07	−0·07	− 7·49
	Serajgunge	+1·67	−0·81	−1·34	−1·84	+0·41	+2·40	+0·05	−1·29	−2·02	+3·91	+2·37	−0·01	+ 3·51
Bogra	Sherpore	+1·01	+0·19	−1·45	−0·05	−5·79	+6·41	−1·85	+2·73	+1·73	−0·35	+0·85	−0·22	+ 2·30
	Nowkhilla	+1·08	+0·30	−1·16	−0·05	−3·02	+8·47	−2·75	−2·06	+7·84	−3·52	+0·85	−0·16	+ 4·33
	Bogra	+1·59	−0·53	−0·88	−3·27	−7·64	+9·07	−0·43	−4·01	+7·50	−3·19	+0·44	−0·09	− 1·44
	Panchbibi	+2·91	+0·03	−0·90	−1·00	−0·99	+17·00	−4·04	−5·49	+7·02	+0·08	+0·41	−0·18	+ 8·25
Rajshahye	Beauleah	+1·49	+0·12	−1·17	−1·57	−3·31	+4·74	−2·10	−6·55	+0·89	−2·79	+2·17	−0·08	− 8·16
	Nattore	+3·10	−0·54	−0·03	−0·89	−0·23	+11·73	+2·25	−5·12	−1·81	−2·26	+2·98	−0·11	+11·17
	Naogaon	+2·04	+1·18	−1·27	−0·60	−4·01	+5·04	−0·52	−2·16	+4·82	−3·56	+0·72	−0·17	+ 5·03
Maldah	Maldah	+3·25	−0·43	−0·85	−1·35	−2·59	+1·08	−2·40	−4·56	+8·93	−0·40	+0·02	−0·33	+ 0·07
	Chanchal	+1·63	+0·03	−0·42	−1·01	−4·07	−6·61	−3·21	−11·43	+1·73	−2·73	−0·10	−0·07	−20·88
Dinagepore	Mohadebpore	+2·71	−0·03	−0·66	−0·89	−5·59	+6·01	−2·00	−5·57	+2·78	−0·36	+0·51	−0·16	− 2·73
	Churamon	+2·47	+1·25	−0·43	−0·03	−4·49	−0·78	+1·84	−3·02	+5·92	−3·26	+0·24	−0·14	− 0·03
	Raigunge	+2·47	+0·84	−0·60	−1·12	−0·29	−0·15	−1·27	−1·03	+4·00	−2·29	−0·10	−0·14	− 5·69
	Dinagepore	+2·14	0	−0·79	−2·27	−6·88	+6·89	−3·17	−0·01	+5·61	−4·30	−0·22	−0·10	−3·71
	Balooghat	+2·33	+0·22	−0·58	−0·95	−4·27	+6·72	−1·09	−2·20	+9·65	+0·98	+0·15	−0·22	+10·14
Rungpore	Bhawanigunge (*Gyabanda*)	+2·45	0	−1·46	−0·74	−4·06	+21·17	+1·07	+1·25	+7·68	−3·12	+0·07	−0·16	+24·15
	Rungpore	+2·31	+0·55	−0·75	−0·15	−8·06	+8·96	+0·76	−1·11	−1·24	−3·16	−0·26	−0·12	− 2·31
	Kurigram	+1·85	+0·30	−1·08	−1·59	−7·78	+12·24	+3·45	−1·48	+10·97	−4·18	−0·22	−0·23	+11·80
	Bagdogra (*Nilphamari*) ...	+1·78	+0·71	−1·16	+0·21	−0·94	+3·62	+8·49	+4·28	−0·30	−3·13	−0·04	−0·19	+ 4·29
Julpigoree	Julpigoree	+1·92	+0·58	−1·89	−2·83	−4·92	+4·69	+12·32	−2·74	−3·47	−3·90	+0·83	−0·08	+ 0·61
Cooch Behar	Dinhatta	+1·62	+0·76	−1·25	−2·04	−5·36	−2·28	+4·02	−1·41	+3·74	−2·82	+0·08	−0·19	− 4·13
	Cooch Behar	+2·19	+2·26	−1·78	−3·21	−3·97	−8·65	+10·12	+8·67	−5·27	−2·76	+0·29	−0·10	+ 6·79
	Mieligunge	+1·61	+2·19	−1·27	−2·92	−9·31	+0·23	+13·18	+0·83	−6·30	−2·87	+0·10	−0·16	+10·25
	Matabhanga	+1·38	+1·66	−1·18	−3·33	−2·05	−7·05	+27·87	−0·18	−11·20	−3·61	+0·14	−0·12	+ 2·37
Darjeeling Hill.	Ruxa	+1·12	+1·78	+3·09	−5·89	−3·23	−6·48	+23·44	−4·00	−6·73	−3·67	+0·21	−0·56	− 1·82
	Silliguri	+1·15	+0·73	+0·37	−0·24	−4·14	+5·04	+14·10	−3·17	+5·11	−1·14	+0·95	−0·09	+18·57
	Darjeeling	+2·16	+1·61	1·89	−0·45	−2·28	+7·33	+25·25	−6·17	−3·24	−3·51	−0·07	−0·21	+18·13
	Kulimpong	+1·63	+0·66	+0·02	−0·43	−1·26	+7·71	+10·36	−5·41	−0·34	−0·99	+0·01	−0·38	+11·7
NORTH BEHAR.														
Purneah	Kissengunge	+1·36	−0·24	−0·66	−1·40	−3·24	+16·42	+13·75	−3·89	+11·24	−2·84	−0·07	−0·14	+30·29
	Arrareah	+1·08	−0·17	−0·62	−1·50	−4·53	+15·68	+3·45	+1·40	+3·89	−3·33	−0·06	−0·09	+13·80
	Purneah	+2·11	−0·18	−0·39	−1·40	−1·61	+0·55	+5·44	−5·20	+5·41	−2·25	−0·04	−0·15	+ 2·23
North Bhagulpore.	Maddapore	+3·70	+0·72	−0·39	−1·03	−2·66	+6·04	+5·29	−3·22	+7·15	−2·87	−0·06	−0·08	+12·59
	Soopool	+2·90	+0·62	−0·49	−0·88	−2·94	+5·54	+4·21	+8·08	+6·66	−2·53	−0·05	−0·12	+21·04
Durbhunga	Tajpore	+3·54	+1·37	−0·16	−0·32	−0·80	+4·36	−2·21	−2·33	+2·69	−2·89	−0·07	−0·08	+ 3·11
	Durbhunga	+2·71	+0·24	−0·19	−0·69	−2·41	+3·04	+2·35	+1·67	+1·87	−2·28	−0·06	−0·17	+ 6·08
	Madhubani	+1·09	+0·46	−0·37	−1·06	−0·14	+5·60	+4·73	+2·19	+8·04	−2·48	−0·03	−0·07	+18·36
Mozufferpore	Sitamarhi	+3·40	+0·54	−0·02	−1·18	−2·32	+5·88	+7·61	+2·00	+1·47	−2·05	+0·29	−0·12	+14·30
	Mozufferpore	+2·55	+1·06	−0·31	−0·52	−1·01	+9·96	+0·85	−4·85	+5·05	−2·87	+0·04	−0·08	+ 9·57
	Hajipore	+1·27	+1·44	−0·28	−0·18	−0·82	+3·88	−3·09	−0·12	+3·05	−3·70	+0·06	−0·12	+ 2·23
Chumparun	Motihari	+2·11	+0·09	−0·47	−0·64	−1·92	+14·54	+13·86	−4·73	+0·47	−3·18	+0·54	−0·15	+30·42
	Bettiah	+1·12	+1·61	−0·23	−0·75	−1·39	+5·53	+3·06	−5·73	+4·05	−3·38	+0·72	−0·23	+ 4·98
Saran	Gopalgunge	+2·45	+1·22	+0·16	−0·22	−0·65	+0·12	−2·89	−5·32	+4·75	−4·59	+0·22	−0·16	− 4·91
	Sewan	+1·85	+0·53	+0·02	−0·27	−0·09	+5·87	−0·49	−1·26	−0·46	−3·81	+1·46	−0·14	+ 2·41
	Chuprah	+1·38	+0·79	−0·04	−0·38	−1·17	+1·59	+3·03	−1·77	+2·83	−2·93	+1·09	−0·09	+ 4·15
SOUTH BEHAR.														
Shahabad	Buxar	+0·54	+0·90	−0·23	−0·16	−0·81	+5·05	+5·82	+1·03	−1·43	−2·18	+2·30	−0·21	+10·68
	Dehree	−0·24	+0·78	+0·45	−0·11	−2·95	+2·56	−3·79	+6·62	−0·07	−0·55	+0·12	−0·57	+ 1·65
	Bhubhoosah	−0·18	+0·31	+0·19	−0·14	−0·92	−3·16	−1·82	+4·05	+0·15	−2·00	+1·01	−0·35	− 2·87
	Sasseram	0	+0·18	+0·92	−0·17	−0·91	−1·90	−5·28	+3·01	−3·88	−2·45	+0·20	−0·28	−10·56
	Arrah	+0·81	+0·54	−0·31	−0·50	−0·63	+1·83	+0·96	+3·33	−3·20	−2·02	−0·03	−0·14	+ 0·64
Gya	Aurungabad	+0·04	+0·56	−0·11	−0·09	−0·70	−1·22	−3·17	+4·05	−3·69	−2·23	+0·11	−0·36	− 6·77
	Gya	−0·01	+2·63	+0·38	−0·32	−1·25	+5·92	−1·06	+0·05	−1·99	−1·34	−0·11	−0·19	+ 2·81
	Nowada	+1·42	+0·40	−0·12	−0·30	−1·77	+6·13	−1·00	−0·17	−1·98	−1·31	−0·12	−0·22	+ 0·63
	Jehanabad	+1·18	+1·28	−0·10	−0·15	−1·38	+2·26	−4·19	−0·22	−1·22	−3·98	+0·12	−0·18	− 5·53
Patna	Patna	+1·43	+1·05	−0·09	−0·27	+1·15	+7·57	−1·76	−0·51	+7·81	−2·76	0	−0·16	+13·48
	Dinapore	+1·41	+0·91	+0·15	−0·23	−0·91	+3·91	+1·86	−1·28	+3·78	−2·96	+0·11	−0·18	+ 6·57
	Behar	+1·22	+2·16	−0·34	−0·22	−0·58	+5·46	−2·89	+0·07	−0·90	−2·70	−0·08	−0·13	+ 1·37
	Barrh	+2·06	+2·28	−0·14	−0·12	+0·64	+3·41	−0·52	−2·73	−3·09	−1·62	−0·15	−0·13	− 0·50
Monghyr	Beegoosorai	+2·59	+1·83	−0·09	−0·36	+0·16	−0·20	+3·88	−3·52	+9·38	−2·55	−0·21	−0·08	+10·83
	Monghyr	+1·85	+0·28	−0·33	−0·45	−1·38	+3·65	−3·95	+0·36	+3·10	−3·81	−0·36	−0·10	− 0·74
	Jamui	+1·77	+0·44	−0·26	−0·50	−0·12	+4·45	−1·72	−5·35	+1·80	−2·53	+0·12	−0·09	− 1·99
South Bhagulpore.	Bhagulpore	+1·53	+1·06	−0·39	−0·84	−1·06	+5·80	−0·36	−2·50	+2·05	−3·93	−0·18	−0·09	+ 1·09
	Banka	+2·75	+0·29	−0·34	−0·56	−1·30	+2·86	−0·41	−6·11	+2·51	−2·97	+0·11	−0·14	− 3·31
Sonthal Pergunnahs.	Rajmehal	+2·15	+0·36	−0·31	−1·04	−3·28	+4·01	−0·39	+2·03	+5·16	−1·31	+0·07	−0·06	+ 7·37
	Godda	+3·30	+0·34	−0·40	−0·40	+1·35	+9·46	−2·66	−7·70	+2·38	−0·40	+0·63	−0·13	+ 5·63
	Pakour	+2·29	+0·11	−0·53	+0·01	−2·43	+1·65	+7·59	−3·69	+6·99	+1·09	+0·74	−0·14	+15·56
	Nya Doomka	+1·47	+0·46	−0·53	−0·46	+0·53	+2·23	+4·00	−5·51	−1·56	+0·41	+2·30	−0·21	+ 3·10
	Deoghur	+1·06	−0·18	−0·51	−0·80	−2·41	−2·45	−2·29	−4·15	+1·59	−1·89	+1·34	−0·16	−10·35
	Jamtara	+0·57	+0·01	−0·23	−0·27	−2·83	+1·33	−2·85	−4·58	+2·23	−0·76	+3·44	−0·14	− 4·07
CHUTIA NAGPUR.														
Hazaribagh	Pachamba	+1·06	+0·57	−0·27	−0·29	−0·49	+0·56	−5·56	+0·15	−3·37	−2·31	+1·20	−3·17	− 8·93
	Hazaribagh	−0·11	+0·18	+0·29	+0·07	−0·80	+2·12	− 0·78	+0·37	−0·10	−0·03	+1·17	−0·23	+ 2·07
	Seetagurah	+0·26	+0·25	−0·77	+0·81	−1·43	−0·91	−0·74	−5·75	−0·51	−1·07	+0·76	−0·29	− 9·99
	Mahudi Hills	+0·38	−0·29	−0·06	+0·37	+0·03	+7·18	−1·69	−3·47	+0·33	−0·86		−0·27	
	Jhoomrah Hill	+0·05	+1·14	−0·05	Nil	−1·80	+0·91	−6·66	−6·18	−3·21	−2·43	+1·72	−0·29	−16·79
Lohardugga	Lohardugga	−0·80	+1·22	+0·07	+0·62	−1·83	+0·37	−4·50	+1·82	+0·16	+0·26	−0·05	−0·51	− 2·97
	Ranchee	−0·72	−0·27	−1·00	+0·06	−1·64	+2·68	+6·11	−2·17	+0·14	+0·71	+1·36	−0·21	+ 5·27
	Palamow	+0·60	−0·27	−0·19	−0·04	+0·34	−0·05	−5·43	−4·70	−1·30	+1·87	+0·18	−0·28	− 9·17
Singbhoom ...	Chyebassa	−0·52	−0·51	−0·89	+0·51	−1·86	+8·36	−5·21	−1·23	−5·57	+0·90	+2·30	−0·35	− 4·17
Manbhoom	Purulia	+0·56	−0·37	−0·70	+0·39	−0·78	+2·42	−0·57	−4·70	−0·36	−2·38	+2·32	−0·26	− 4·43
	Gowindpore	+0·26	−0·30	+0·03	−0·52	−0·57	+1·20	−3·51	−6·36	−0·33	−3·43	+1·48	−0·19	−12·23

METEOROLOGICAL OFFICE, BENGAL,
The 18th February 1890.

A. PEDLER,
Meteorological Reporter to the Govt. of Bengal.

Results of the Meteorological Observations taken at the Alipore Observatory from 9th to 15th February 1890.

Month.	Date.	Maximum in sun.	Number of hours of bright sunshine.	Mean pressure barometer at 32° Fahr.	Temperature. Mean.	Maximum.	Range.	Minimum.	Hygrometry. Mean wet bulb.	Vapour tension.	Dew point.	Humidity.	Wind. Prevailing direction.	Miles recorded.	Rain.	Weather.
1890.		°		Inches.	°	°	°	°	°	Inches	°	%			Inches.	
Feb.	9th	136·2	9·5	30 039	68·0	82 5	26·2	56·3	55 9	0·410	53·4	63	NNE, N and calm ...	47	Nil	Clear, ⌓.
„	10th	134·5	8·4	·049	67·9	81·7	25·4	56·3	60·1	·417	53 9	65	SSE, NNW and variable.	47	„	Chiefly clear, ⌓, —.
„	11th	137·5	9·6	·052	66·8	81 3	27·0	51 3	57·7	·360	49 8	59	SE, NE by N and NNW.	66	„	Clear, ⌓.
„	12th	134 2	9·2	·009	65 5	81·1	30·4	50·7	57·4	·367	50·4	62	NNW and W	42	„	Clear, ⌓.
„	13th	135·5	8·6	29 963	68 1	82·6	27·9	54 7	60·0	·415	53·8	61	S by W and WSW .	59	„	Chiefly Clear ⌓.
„	14th	140 6	9·0	·893	70 6	84 2	25 7	58·5	65·4	·532	60·7	74	SSW and WSW	96	„	Partially cloudy, ⌓, =.
„	15th	134 3	7·2	·820	72 3	82·2	18·1	64·1	68 3	·644	66 2	82	SSW, SW by S and variable.	66	„	Partially cloudy, ⌓, =.

		Inches.
The mean pressure of the seven days		29·975
The average pressure of the corresponding period for 24 years, S.-G.'s Office ...		29·951
		Hours.
The total number of hours of bright sunshine		61·5
The maximum possible number of hours of sunshine		79·1
		°
The mean temperature of the seven days		68·5
The average temperature of the corresponding period for 24 years, S.-G.'s Office		72·2
The extreme variation of temperature		33·5
The maximum temperature		84 2
		Miles.
The highest velocity of the wind in one hour		9
		lbs.
The highest pressure of wind on one square foot	Not measurable.	
		%
The mean relative humidity		67
The average relative humidity of the corresponding period for 24 years, S.-G.'s Office		69
		Inches.
The total fall of rain from 9th to 15th February 1890		Nil
The average fall of the corresponding period for 24 years, S.-G.'s Office ...		0·39
The total fall from 1st January to 15th February 1890		0·77
The average fall of the corresponding period for 24 years, S.-G.'s Office ...		1·04

The mean pressure, temperature, &c., are deduced from the traces of the Barograph and Thermograph.

The maximum and minimum temperatures are obtained from self-registering thermometers. All the thermometers are verified, and the readings have been corrected to a standard constructed and verified at the Kew Observatory. They are exposed under a thatched shed open at the sides, and are suspended four feet above the ground.

The barometer readings are corrected approximately to those of the standard, Newman's No. 86, formerly at the Surveyor-General's Office.

The hygrometric elements are obtained from Tables III, IV, and V of the official tables computed in the Meteorological Office, and based on Regnault's modifications of August's formula.

The directions and the movement of the wind are taken from the trace of a Beckley's anemograph.

The mouth of the rain-gauge is one foot above the ground.

⌓ dow, = fog.

C. Little,

For Meteorological Reporter to the Govt. of India.

Meteorological Office, Govt. of India;

Calcutta, the 17th February 1890.

Meteorological Report of the Province of Bengal

STATION OBSERVATIONS.

Meteorological Division	District.	Representative station.	Air pressure. Mean barometric height, 8 A.M.	Air pressure. Mean reduced to sea-level.	Air pressure. Variation from mean.	Wind. Prevailing direction.	Wind. Mean wind velocity.	Temperature. Highest during week.	Temperature. Date.	Temperature. Lowest during week.	Temperature. Date.	Temperature. Mean maximum temperature.	Temperature. Mean minimum temperature of week.	Temperature. Mean daily temperature of week.	Temperature. Variation from normal of week.	Temperature. Mean, 8 A.M., temperature.
Orissa.	Pooree	Pooree ...	30·041	30·054	—	Calm	0	83·2	13th Feb.	?	?	82·3	?	?	—	69.1
		Gopalpore	30·035	30·057	+·049	NNW	190·0	84·2	12th ,,	64·9	13th Feb.	81·8	68·1	75·0	+6·2	72·4
		False Point ...	30 040	30·062	+·022	NW	144 0	84·4	10th ,,	55 5	12th ,,	82 3	50·1	70 7	—1·9	60·4
	Cuttack	Cuttack ...	29·987	30·072	+·038	Calm	24·0	89 4	9th–14th Feb.	61·3	12th ,,	89·2	64·7	77·0	+0·2	68 8
	Balasore	Balasore ..	30·013	30 075	+·032	NNW	80·8	86·4	10th ,,	53·5	12th ,,	84·5	58·3	71·5	—0·3	62 7
South-West Bengal.	South-West Midnapore / South 24-Pergunnahs	Saugor Island	30·049	30 076	+·038	North-Westerly	195 0	83 7	10th ,,	53·8	12th ,,	80·6	60·6*	70·7*	—1·0*	67 3
	Midnapore	Midnapore ...	29 921	30·079	+·029	N	28·0	90·3	14th ,,	54·2	12th ,,	87·2	57·9	72 6	+1·6	65 0
	24-Pergunnahs ... .. / Howrah ... .. / Hooghly	Calcutta	30·054	30 077	+·030	Calm	55 0	82 5	10th & 14th Feb.	50·8	12th ,,	81·6	55 6	68·0	—1·1	61·0
	Burdwan	Burdwan	29·968	30 075	+ 024	Calm	25·0	87·0	14th ,,	50·3	12th ,,	84·4	53·4	68 9	—0 7	60·9
	Bankoora	Bankoora ..	29·741	30·061	+·026	WNW	46·0	87·6	14th ,,	53·2	12th ,,	84·0	50 3	70 6	+1 2	61·9
	Beerbhoom ... ... / West Burdwan	Raneegunge	29·747	30·100	+·040	WNW	41·9	87·9	14th ,,	54·4	12th ,,	85·4	55·5	70·5	+1·4	60 9
	Moorshedabad	Berhampore...	30 000	30·071	+ 026	NW	35·7	84·1	14th ,,	50·7	8th ,,	82·0	52 7	67·4	—0·4	56·8
	Nuddea	Krishnaghur	30·026	30·096	+·054	W NW	64·3	86·2	14th ,,	47·8	8th & 11th Feb.	83·5	50·0	66·7	+0·6	60 9
	Jessore ... .. / Khoolna	Jessore	30·051	30 066	+·023	Calm	28·8	83·2	11th & 14th Feb.	52 5	8th ,,	81 9	54·6	68·3	—0·1	58·6
	Chittagong	Chittagong	29 963	30 058	+·007	North-Westerly	45·7	84·6	11th 13th Feb.	53·2	8th ,,	83 3	55·4	69·4	+0·5	61·7
East Bengal.	Chittagong Hill Tracts	Demagiri ..	Observations not received.													
	Backergunge	Barrisal	30·049	30·062	+ 042	Calm	42·1	81·8	14th Feb.	53·6	10th & 12th Feb.	80·7	54 3*	67·4*	—1·0*	61·6
	Noakholly	Noakholly ...	30·032	30·07	—	N	80·5	83·3	13th ,,	49·0	8th ,,	82·2	51·7	66·9	—	61·4
	Furreedpore	Furreedpore...	30 031	30 073	+ 029	Calm	39·0	81 0	14th ,,	51·0	8th ,,	75·7	53 7	64·7	—2·1	59·0
	Dacca	Dacca .	30·028	30 052	+·010	Calm & Northerly	65·3	83·6	14th ,,	52·3	8th ,,	82·0	53 7	68 4	—0·4	61·2
	Tipperah	Commillah ..	30·037	30·074	+·018	Variable	18·0	83·4	14th ,,	51·1	8th, 10th, & 11th Feb.	81 9	53·1	67·5	—0·8	61·3
	Mymensingh	Mymensingh.	30·005	30·066	+·020	North-Easterly	39 3	81·9	14th ,,	51 1	11th ,,	79·6	54·0	66·8	+1 4	59·2
North Bengal.	Bogra	Bogra	29·977	30·044	+·032	Calm	28·3	83·8	11th ,,	49·0	9th & 11th Feb.	81·5	51·6	66·6	+1·4	56·9
	Pubna	Serajgunge ..	30·006	30·055	+ 022	Westerly	11·9	83·9	14th ,,	46 2	11th ,,	81·7	50·1	65·9	+0·4	58·1
	Rajshahye	Rampore Beauleah.	29 993	30·067	+·050	N	65·5	82·8	14th ,,	47·0	8th ,,	80·5	51 8	66·2	+1·4	59 3
	Maldah	Maldah ..	29·995	30·081	—	Calm	51·4	82 6	14th ,,	46 2*	11th ,,	80 9	48·7	64 8	—	61·3
	Dinagepore	Dinagepore	29 952	30 001	+·015	SW	35·2	83 1	14th ,,	43 3	9th ,,	81·0	49 7	65·3	+2·0	55 2
	Rungpore	Rungpore	29·948	30 082	+·044	Calm	13·1	82·1	13th ,,	46·9	10th ,,	8[illegible]	49·2	64·8	+3·6	57·0
	Julpigoree ... ... / Cooch Behar	Julpigoree ..	29·760	30 065	+·027	NW	57·3	?	——	50 9	8th ,,		52 9[illegible]			59·5
	Darjeeling Hill Tracts ..	Darjeeling .	23·029	—	—	South-Westerly.	96·3	55·6	13th ,,	30·2	8th, 9th ,,	50·7	38·4	44·5	+0 5	42·6
South Behar.	Purneah ... ... / North Bhagulpore	Purneah ..	29·932	30 069	+·029	South-Westerly	55·8	80 2	14th ,,	45·0	8th & 11th	79 1	47·6	63·4	+0·1	52 6
	Mozufferpore	Mozufferpore	Observations suspended.													
	Durbhunga	Durbhunga	29·909	30·088	+ 043	WNW	63·7	81·4	14th Feb.	?	?	79·7	?	?	?	57·6
	Chumparun	Motihari ..	29·834	30·078	+ 040	Southerly	119·5	80·2	10th, 13th, 14th Feb.	44·9	8th & 11th	78·3	47·8	63·1	+2·1	54·8
	Sarun	Chupra ..	Observations incomplete.													
South Behar.	Shahabad	Dehree ..	29·728	30·103	+·051	SW	140·6	85·3	14th ,,	50 5	11th ,,	83·1	55·9	69·5	+5·3	60·7
		Buxar ..	29·840	30·099	+·060	N-Wly	85 1	85 9	14th ,,	47·9	11th ,,	82·1	52·0	67·0	+3·6	58·4
		Arrah* ..	29·875	30 084	+·052	WSW	84·5	85·3	14th ,,	43·9	11th ,,	84·0	50·5	66·3	+3·1	57·0
	Gya	Gya ..	29·700	30·102	+·047	S	107·2	86·2	11th ,,	53·4	8th ,,	83 1	55·7	69·4	+2·0	60 6
	Patna	Bankipore ..	29 892	30·087	+·030	Westerly	57·4	81·9	14th ,,	48·4	11th ,,	80 2	51·8	66·0	+1·9	59·7
	South Bhagulpore ... / Monghyr	Bhagulpore ...	29·895	30·067	+·042	Calm	?	82·8	10th & 14th Feb.	48·0	11th ,,	81·5	51·4	66·4	+1·9	57·9
Chutia Nagpur.	Sonthal Pergunnah ...	Doomka ..	29·559	30 091	—	NW	55·6	85·1	14th ,,	48·6	11th ,,	82·8	50·8	66·8	—	58·7
	Hazaribagh	Hazaribagh	28·020	30 105	+·048	North-Westerly	154·1	83 3	14th ,,	49·8	11th ,,	79 8	55·0	67 4	+2·6	63·4
	Lohardugga ... ... / Manbhoom	Ranchee ..	27·888	30 095	+·045	Calm	94·0	83·5	14th ,,	47·5	11th ,,	80·9	53·6	67·3	+2·9	63·8
	Singbhoom	Chyebassa ...	29·295	30·098	—	Calm	23·5	88·4	14th ,,	51·5	12th ,,	85·2	50·1	70·7	—	62·5

* Means of six days.

Explanation.—Summary.—The normal means of air pressure and temperature are the arithmetical average or means of the reading during the same period for the last [illegible]. The *humidity* of the atmosphere is expressed at percentage, saturated air being presented by 100. A clear sky is denoted by 0 and an overcast sky by 10. The numbers are the [illegible]merical means or average of the rainfall in that district determined from the returns sent in by the subdivisional station for the period in question during the past [illegible] stations in the district sending in returns divided by the number of stations. A rainy day is one on which at least hundredth of an inch fell.

for the week ending Friday, the 14th of February 1890.

Average humidity at 8 A.M.	Average cloud amount at 8 A.M. for week.	Rainfall of week at observing station.	Of week. Mean for district.	Of week. Normal mean.	Rainfall. Since 1st of month. Mean for district.	Since 1st of month. Normal mean.	Since 1st of month. Variation.	Since 1st May 1889. Mean for district.	Since 1st May 1889. Normal mean.	Since 1st May 1889. Variation.	Average number of rainy days.	Normal number of rainy days.	Representative station.	District.	Meteorological Division.
90	2·6	Nil	Nil	0·23	Nil	0·38	−0·38	74·91	56·01	+18·93	0·0	0·7	Pooree	Pooree	Orissa.
74	0·7	Nil											Gopalpore		
91	2·7	Nil											False Point		
77	2·4	Nil	Nil	0·22	Nil	0·43	−0·43	66·39	52 41	+13·98	0·0	0·7	Cuttack	Cuttack	
82	0	Nil	Nil	0·26	Nil	0·59	−0·59	49·96	53·90	−3·94	0·0	0·7	Balasore	Balasore	
90	1·4	Nil	Nil	0·35	Nil	0·92	−0·92	58·57	63·29	−4·72	0 0	0·0	Saugor Island	South-West Midnapore / South 24-Pergunnahs	South-West Bengal.
57	0·7	Nil	Nil	0·17	Nil	0·60	−0·60	46·39	52·17	−8·78	0·0	0·5	Midnapore	Midnapore	
85	1·3	Nil	Nil	0·20	Nil	0 80	−0·80	54·10	52·16	+1·64	0·0	0·8	Calcutta	24-Pergunnahs / Howrah / Hooghly	
60	0·7	Nil	Nil	0·25	Nil	0·67	−0 67	43·89	47·38	−3·49	0·0	0·6	Burdwan	Burdwan	
60	1·1	Nil	Nil	0·30	Nil	0·42	−0·42	55·93	52 70	+3·23	0·0	0·6	Bankoora	Bankoora	
55	0·6	Nil	Nil	0·33	Nil	0·63	−0·63	52·46	52 25	+0·21	0·0	0·5	Ranegunge	Beerbhoom / West Burdwan	
84	1·1	Nil	Nil	0·20	Nil	0·48	−0·48	51·17	51 03	+0·14	0·0	0·5	Berhampore	Moorshedabad	
70	0·6	Nil	Nil	0·24	Nil	0·62	−0·62	51 61	49·76	+1·85	0·0	0·5	Krishnaghur	Nuddea	
90	1·4	Nil	Nil	0·26	Nil	0·65	−0 65	54 75	53 87	+0·88	0 0	0 5	Jessore	Jessore / Khoolna	
84	0·6	Nil	Nil	0·29	Nil	0·41	−0 41	100·35	114·19	−13·84	0 0	0·5	Chittagong	Chittagong	East Bengal.
			Nil	0 29	Nil	0·48	−0 48	65·17	82·08	−16·91	0·0	0·7	Demagiri	Chittagong Hill Tracts	
83	0·7	Nil	Nil	0·32	Nil	0·62	−0·62	78·41	77 63	+0·78	0·0	0 7	Barrisal	Backergunge	
77	0	Nil	Nil	0·34	Nil	0 64	−0·64	90·82	107·75	−16 93	0·0	0·7	Noakholly	Noakholly	
83	0·4	Nil	Nil	0·24	Nil	0 61	−0·61	62·22	56 33	+5·89	0·0	0·5	Furreedpore	Furreedpore	
74	1·1	Nil	Nil	0·34	Nil	0·69	−0·69	76·19	60·29	+15·90	0·0	0 7	Dacca	Dacca	
84	0·4	Nil	Nil	0·42	Nil	0·65	−0·65	50·62	63·96	−13·34	0·0	0 8	Commillah	Tipperah	
88	0·6	Nil	Nil	0·37	Nil	0·63	−0·63	88·78	67·94	+20 84	0 0	0 7	Mymensingh	Mymensingh	
77	0	Nil	Nil	0·28	Nil	0·47	−0·47	65·62	57·70	+7·92	0·0	0 6	Bogra	Bogra	
81	0·1	Nil	Nil	0·32	Nil	0·62	−0·62	55·37	53 97	+1 40	0 0	0 6	Serajgunge	Pubna	
66	0·1	Nil	Nil	0·21	Nil	0·44	−0·44	54·35	54·32	+0 03	0·0	0 4	Rampore Beauleah	Rajshahye	North Bengal.
68	0	Nil	Nil	0·17	Nil	0·35	−0 35	39·76	54·57	−14 81	0 0	0·5	Maldah	Maldah	
81	0	Nil	Nil	0·21	Nil	0·27	−0·27	57·09	57·07	−0 18	0·0	0 6	Dinagepore	Dinagepore	
87	0	Nil	Nil	0·20	Nil	0·26	−0 26	85 87	74·09	+11·78	0·0	0 6	Rungpore	Rungpore	
88	0	Nil	Nil	0·16	Nil	0·19	−0·19	117·73	111·44	+6·29	0 0	0·5	Julpigoree	Julpigoree / Cooch Behar	
88	4·9	0·01	Nil	0·19	Nil	0·31	−0·31	133·46	121·68	+11 78	0·0	0·8	Darjeeling	Darjeeling Hill Tract	
81	0	Nil	Nil	0·25	Nil	0·37	−0·37	75·00	59·05	+15·95	0·0	0·6	Purneah	Purneah / North Bhagulpore	North Behar.
			Nil	0·18	Nil	0·29	−0·29	48·83	43 83	+5·00	0·0	0 6	Mozufferpore	Mozufferpore	
73	0	Nil	Nil	0·20	Nil	0·31	−0·31	52·11	45 03	+7 08	0·0	0 6	Durbhunga	Durbhunga	
80	0·6	Nil	Nil	0·16	Nil	0·29	−0·29	63·96	47·08	+16 88	0·0	0·5	Motihari	Chumparun	
			Nil	0·18	Nil	0·24	−0·24	40 13	43·22	−3 09	0 0	0 5	Chupra	Sarun	
55	0	Nil											Dehree	Shahabad	South Behar.
56	0	Nil	Nil	0·13	Nil	0·27	−0·27	40·07	40·35	−0·28	0·0	0 5	Buxar		
63	0	Nil											Arrah		
91	0	Nil	Nil	0 10	Nil	0·28	−0·28	37·07	41 90	−4·83	0·0	0·4	Gya	Gya	
52	0	Nil	Nil	0·15	Nil	0·34	−0·34	43·19	41 66	+1·83	0·0	0·5	Bankipore	Patna	
64	0	Nil	Nil	0·12	Nil	0·30	−0 30	42·43	43·47	−1·04	0·0	0·4	Bhagulpore	South Bhagulpore / Monghyr	
62	0	Nil	Nil	0·11	Nil	0·33	−0·33	54·15	51·12	+3·03	0·0	0·4	Deoomka	Sonthal Pergunnahs	
38	0	Nil	Nil	0·25	Nil	0·37	−0·37	43 03	50·83	−7·80	0·0	0·6	Hazaribagh	Hazaribagh	Chutia Nagpur.
48	0·3	Nil	Nil	0·23	Nil	0·46	−0·46	44·34	49·59	−5·25	0·0	0·6	Lohardugga	Lohardugga / Manbhoom	
			Nil	0·29	Nil	0·70	−0·70	38·30	47·02	−9·26	0·0	0·6	Ranchi		
68	1·0	Nil	Nil	0·21	Nil	0·58	−0·58	48·76	52·16	−3·40	0·0	0·7	Chyebassa	Singbhoom	

ten years. The variations are *negative* when the mean for the week is less than the corresponding normal mean, and *positive* when greater.
denoting cloud amount represents the part of the sky covered, the whole sky being denoted by 10. Under the head District observations of rainfall the normal means
17 years. The means of the district are the numerical average of the rainfall return received in the district, *i.e.*, from total rainfall at the subdivisional

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 14th of February 1890.

Meteorological division.	District.	Station.	Rainfall.							Total		Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 18th May 1889.	Average rainfall from 15th May to date.
			Saturday, 8th February.	Sunday, 9th February.	Monday, 10th February.	Tuesday, 11th February.	Wednesday, 12th February.	Thursday, 13th February.	Friday, 14th February.	Number of rainy days.	Rainfall of week.				
Orissa	Pooree	Pooree	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·47	80·71	51·79
		Khurdah	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·35	76·57	50·85
		Banpur	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·32	65·50	49·33
		False Point	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·38	77·00	64·26
		Gop	.....	.	.....	..	.....	.....	.....	Nil	Nil	Nil	?		?
		Pipli	.....	.....	.....	..	.....	.....	.....	Nil	Nil	Nil	?		?
	Cuttack	Jagatsingpore	.....	..	.....	..	.....	.....	..	Nil	Nil	Nil	0·23	74·49	47·31
		Banki	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·34	58·43	49·84
		Cuttack	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·45	78·18	50·80
		Kendrapara	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·45	72·24	53·67
		Jajpore	.....	.....	..	..	.....	.....	.....	Nil	Nil	Nil	0·68	57·64	54·13
		Dharmsala	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	59·25	?
		Salipore	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	72·47	?
	Balasore	Chandbali	.....	.	..	..	.	..	..	Nil	Nil	Nil	0·53	55·04	53·00
		Bhuddruck	.....	.	..	..	.....	.....	.....	Nil	Nil	Nil	0·75	57·66	52·65
		Sorah	.....	.	..	..	.....	.....	.....	Nil	Nil	Nil	0·44	46·05	51·56
		Balasore	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·80	49·61	58·75
		Jellasore	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·57	52·50	54·49
		Baripodah	.....	.....	.....	..	.....	.....	.....	Nil	Nil	Nil	0·40	54·79	54·17
South-West Bengal.	Midnapore	Contai	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·83	55·18	62·10
		Sangor Island	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·90	56·74	68·00
		Tumlook	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·82	49·60	52·03
		Midnapore	.....	..	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·50	46·26	49·41
		Ghattal	.....	..	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·40	43·30	55·03
		Kukrahaty	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	59·84	?
		Bhapwanpore	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	51·72	?
		Garbetta	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	46·29	?
	24-Pergunnahs	Diamond Harbour	.....	..	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·01	63·70	59·53
		Canning Town	.....	..	..	.....	.....	.....	..	Nil	Nil	Nil	?	57·85	?
		Alipore Jail	.....	..	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·85	52·87	50·70
		Barrackpore	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	0·87	52·12	50·72
		Dum-Dum	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	0·69	65·43	52·39
		Baruset	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	0·86	58·71	50·83
		Basseerhat	.....	..	..	.....	.....	.....	..	Nil	Nil	Nil	0·74	62·61	55·29
	Howrah	Howrah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·70	59·64	52·51
		Mohesroka (*Oolooberiah.*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·82	55·04	52·82
	Hooghly	Serampore	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·84	55·63	50·97
		Hooghly	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·83	57·53	49·00
		Jehanabad	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·52	44·61	45·97
	Burdwan	Culna	.....	.....	..	.....	.....	.....	.....	Nil	Nil	Nil	0·65	41·32	44·98
		Burdwan	.....	.....	..	.....	.....	.....	.....	Nil	Nil	Nil	0·65	47·25	48·45
		Catwa	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·75	43·11	48·53
		Raneegunge	.....	.....	..	..	.....	.....	.....	Nil	Nil	Nil	0·85	55·90	49·86
		Mankur	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	54·80	?
	Bankoora	Bankoora	.....	.....	..	.....	.....	.....	.....	Nil	Nil	Nil	0·52	50·86	52·01
		Bishenpore	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	0·41	57·49	52·39
		Mahara	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·36		52·29
		Khatra	.....	..	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·39	65·91	54·60
		Indas	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·14	?
		Kotulpore	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	?	48·40	?
		Anda	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	?	40·44	?
		Gangajalghati	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	?	59·17	?
		Raipore	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	?	58·35	?
		Sonamukhi	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	54·44	?
	Beerbhoom	Ps. Soory	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·66	59·06	54·37
		Dewanpore	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·79	47·07	54·89
		Rampore Haut	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·12	47·78	51·96
		Ratpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·04	?
		Mararai	.....	..	..	.....	.....	.....	.....	Nil	Nil	Nil	?	53·10	?
	Nudden	Ranaghat	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·67	56·10	47·63
		Kissnaghur	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·71	42·95	46·72
		Chooadanga	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·63	49·80	51·02
		Meherpore	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·58	54·15	48·06
		Koushtea	.....	.....	..	..	.....	.....	.....	Nil	Nil	Nil	0·61	56·06	55·02
	Khoolna	Satkhira	.....	.....	..	..	.....	.....	.....	Nil	Nil	Nil	0·58	54·54	55·74
		Bagerhat	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·90	55·18	62·40
		Khoolna	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·58	56·82	55·40
		Nohipur	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	?	?
		Rampal	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	?	?
	Jessore	Narail	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·63	52·01	46·60
		Jessore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·63	49·90	55·03
		Jhenidah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·64	50·74	53·09
		Magoorah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·64	56·90	49·71
		Bongong	.....	..	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·66	47·04	52·42
	Moorshedabad	Kandi	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·46	57·38	51·54
		Berhampore	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·56	46·28	51·86
		Lalbagh	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	0·45	47·13	51·20
		Azimgunge	.....	..	.....	..	.....	.....	.....	Nil	Nil	Nil	0·50	?	51·70
		Jungipore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·43	55·01	49·62
		Lalgola	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·40	58·02	51·34
		Jaganga	.....	..	..	..	.....	.....	.....	Nil	Nil	Nil	?	43·29	?
		Akrigunj	.....	..	.....	.	.....	.....	.....	Nil	Nil	Nil	?	45·06	?
		Patkabari	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
Bengal	Chittagong	Cox's Bazar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·24	123·30	136·05
		Chittagong	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·58	77·08	95·00
		Kutubdia	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	113·09	?
		Satkanya	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	63·66	?
	Chittagong Hill Tracts.	Rangamati	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·73	63·12	84·47
		Rama	.....	..	.....	.....	.....	.....	..	Nil	Nil	Nil	0·23	67·20	80·74
	Backergunge	Patuakhally	.....	.....	..	.....	..	.....	.....	Nil	Nil	Nil	0·70	87·00	88·55
		Perozepore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·79	72·64	70·81
		Burrisal	.....	.....	.....	.....	..	.....	.....	Nil	Nil	Nil	0·59	73·21	68·34
		Bhola	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·31	80·69	82·93

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 14th of February 1890—contd.

Meteorological Division.	District.	Station.	Rainfall: Saturday, 8th February.	Sunday, 9th February.	Monday, 10th February.	Tuesday, 11th February.	Wednesday, 12th February.	Thursday, 13th February.	Friday, 14th February.	Total: Number of rainy days.	Total: Rainfall of week.	Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	Average rainfall from 15th May to date.
EAST BENGAL —concld.		*Gournaddi*	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	61·31	?
		Bauphal	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	93·12	?
	Noakholly	Noakholly	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·60	102·58	108 40
		Feeny	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·08	79·03	107 40
		Harishpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	84·32	?
		Ramganj	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	80·75	?
	Furreedpore	Madaripore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·40	62·93	56·01
		Furreedpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·62	65·00	56·88
		Goalundo	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·77	58·05	53·71
	Dacca	Munshigunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·70	77·51	70·79
		Dacca	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·63	76·45	59·01
		Narainguage	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·87	81·14	60 65
		Manickgunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·56	69 67	50 56
		Joydebpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	68·55	?
	Hill Tipperah	Agartola	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·68	44·38	62 23
	Tipperah	Comilla	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·60	62·07	76·71
		Chandpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·51	65·07	76·40
		Brahmunberia	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·83	53·12	63·54
		Ramchandrapore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	60·83	?
		Nasirnagar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	32·39	?
		Daudkandi	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	53·71	?
		Kasba	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	62 44	?
		Laksham	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	69·18	?
	Mymensingh	Kishoregunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·61	70·80	70·73
		Atia (*Tangail*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·66	67·69	56·09
		Mymensingh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·66	97·95	74·04
		Jamalpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·84	86·01	65·10
		Netrekona	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	126·47	73 15
		Subornakhali	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·43	?
		Durgapore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	150 28	?
		Sherepore Town	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	88·17	?
		Dewanganj	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·08	?
NORTH BENGAL.	Pubna	Pubna	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·50	59·20	54·74
		Serajgunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·75	60·51	53·01
	Bogra	Sherepore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·46	62·67	57·88
		Nowkhilla	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·40	63·44	54·60
		Bogra	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·72	71·33	61·21
		Panchbibi	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·37	65·98	56·09
	Rajshahye	Rosulgah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·49	46·34	53·40
		Nattore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 63	58·84	55 55
		Naogaon	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·19	57·87	51·01
		Lalpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	30·72	?
		Manda	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·27	?
	Maldah	Maldah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·33	50·53	52 05
		Chanchal	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 37	28 95	57·08
		Gajol	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	30·79	?
		Sibganj	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·77	?
	Dinagepore	Mohadel pore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·29	53·03	56 08
		Churamon	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	51·82	52·83
		Raigange	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·27	52·37	58·10
		Dinagepore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 35	68·33	63·77
		Balooghat	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·19	61 20	51·71
		Thakoorgaon	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	87·81	?
	Rungpore	Buswanigunge (*Gyabanda*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 31	88·39	61·97
		Rungpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 23	74·98	74·78
		Kurigram	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 19	91 62	73 53
		Bagdogra (*Nilphamari*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	88·49	85 44
		Ulipore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	79·10	?
	Julpigoree	Julpigoree	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·18	123·45	117 18
		Alipore Door	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	119·58	?
		Fallacotta	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	128·23	?
		Debiganj	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	90·04	?
		Bhagalpore (*Nagrakatta*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	139·22	?
	Cooch Behar	Dinhatta	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·22	98·83	90·01
		Cooch Behar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·19	125 89	118·49
		Mickligunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 19	122·40	10·03
		Matabhanga	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 16	118·03	111·30
	Darjeeling Hill.	Buxa	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	102·37	103 24
		Silliguri	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 05	121·02	105 18
		Darjeeling	0 01	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	128·28	100·16
		Kalimpong	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 34	92·15	84·31
		Kurseong	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	170·23	?
NORTH BEHAR	Purneah	Kissengunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 34	103·07	70·77
		Arrarsh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	79·75	64 09
		Purneah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·39	63·17	61·09
		Gondwara	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
		Balarampore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
		Matiari	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
		Kataganj	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
	North Bhagulpore.	Nurrainpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·38		?
		Scogool	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·32	60·85	49·03
		Protabganj	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil		67 26	48·50
														88·16	?
	Durbhunga	Rajpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·28	42·57	43·51
		Duromunga	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·33	50·24	46·19
		Madhubani	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·31	63·56	45·39
		Bahera	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	69·86	?
		Boshera	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	55·84	?
	Mozufferpore	Sitamarhi	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·22	55·45	43·34
		Mozufferpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·3	48·47	45 88
		Hajipore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·34	42·57	42·39
		Pare	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	37·69	?
		Mahua	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	41·02	?
		Sishar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
		Pupri	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	48·14	?

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 14th of February 1890—concld.

Meteorological Division.	District.	Station.	Rainfall.							Total.		Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	Average rainfall from 15th May to date.
			Saturday, 8th February.	Sunday, 9th February.	Monday, 10th February.	Tuesday, 11th February.	Wednesday, 12th February.	Thursday, 13th February.	Friday, 14th February.	Number of rainy days.	Rainfall of week.				
North Behar —concluded	Chumparun	Motihari	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·32	78·28	45·16
		Bettiah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·27	52·57	48 45
		Bagaha	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	70·24	?
		Burhuriwa	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·70	?
	Saran	Gopalgunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	35·48	43·85
		Sewen	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·20	44·20	44·21
South Behar	Shahabad	Chuprah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	40·74	40·86
		Buxar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·24	47·44	38·86
		Dehree	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·10	42·66	40·13
		Bhaboosh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	38·16	41·38
		Rasseram	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·33	29·41	41·02
		Arrah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·29	42·09	40·09
		Mohaniah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
	Gya	Aurungabad	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·19	35·42	43 11
		Gya	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·34	39·85	43·01
		Nowadah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·36	39·59	40·56
		Jehanabad	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	33·40	40·43
		Arwal	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	34·34	?
		Daudnagar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	28·69	?
		Sherghati	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	29·29	?
		Rajauli	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	17·92	?
		Pakri Barawan	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	31·90	?
	Patna	Patna	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·28	31·49	42·3
		Dinapore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·23	45·53	41·7
		Behar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·02	41·08	42·3
		Barrh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·32	35·83	40·1
		Bukram	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	41·28	?
		Hilsa	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	35·21	?
	Monghyr	Begoosera	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·35	47·62	40·5
		Monghyr	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	41·07	46·8
		Jamui	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·34	38·48	43·3
		Gogri	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	59·19	?
		Sheikpura	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	43·32	?
	South Bhagulpore	Bhagulpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·27	45·06	42·5
		Barka	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·27	38·34	44·0
		Kolgong	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	40·07	?
		Bangadn	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
	Sonthal Pergunnahs.	Rajmohal	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·18	59·90	52·4
		Godda	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·35	49·04	47·8
		Pacour	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·30	73·59	55·0
		Nya Doomka	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·41	56·77	53·7
		Deoghur	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	40·10	51·3
		Jamtara	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	46·21	49··
		Mohagama	.....	.....	.....	.....	.....	.....	.....	Nil	Nil		?	56·41	?
		Namkat	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	55·87	?
...IA NAG-...I.	Hazaribagh	Pachamba (*Garás*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·46	38·90	47·9
		Hazaribagh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·55	49·10	47·3
		Somtagurah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·22	36·24	47··
		Mahudi Hills	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26		48·3
		Jhoomra Hills	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 35	43·00	63·
		Barki	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	31·36	
		Chatra	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	46·04	
		Karagdeha	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	39·35	
		Ramphar	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		
	Lohardugga	Lohardugga	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·26	45·24	51·
		Ranchi	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·73	55 61	52·
		Palamow	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·39	34·16	44·
		Silli	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	33·80	
		Balumat	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	
		Hosseinabad	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	44·40	
		Garwah	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	28 77	
	Singbhoom	Chyebassa	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·58	48·76	52·
		Chakradharpore.	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	40·80	
		Ghatsilla	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	58·70	
		Raharagura	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	53·80	
	Manbhoom	Purulia	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·72	48·52	49
		Gobindpore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·67	33·19	45·
		Raghunathpore.	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·91	
		Burrabhoom	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	44·32	
		Jhalda	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	51·42	
		Oaus	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	5 8·56	

Explanation.—Indicates that no rain has fallen. If the return for any day has not been received, the corresponding space is left blank. If any of the returns are wanting, the corresponding spaces in the total rainfall columns are left blank.

CALCUTTA, *the 18th February* 1890.

SUMMARY OF THE RAINFALL AND METEOROLOGICAL OBSERVATIONS TAKEN IN BENGAL FOR THE WEEK ENDING FRIDAY, THE 14TH FEBRUARY 1890.

In the report on the meteorology of the previous week it was remarked that conditions had been fairly normal, but that towards the close of that period, the northerly wind current blowing over Bengal was beginning to fall off in force, and light southerly winds and calms were being reported at the southerly stations; so that there was a decided tendency for humidity and temperature to rise. At the commencement of the present week, that is on the 8th, the very light northerly wind current continued, pressure rose, and became generally about a twentieth of an inch above the normal, while temperature also rose distinctly and became on the whole nearly normal; though the western stations recorded temperatures in excess and the eastern stations were in defect of the normal. Conditions remained practically unchanged on the 9th, except that pressure and temperature had again risen slightly, so that generally on this day both temperature and pressure were in excess of the normal. On the 10th, winds became less regular in direction, and at some of the southern and western stations south-westerly winds were blowing, pressure and temperature again continued to rise, and were both very considerably in excess of the normal, while also the southerly winds brought up considerable amounts of moisture to the province. On the 11th rather variable and light winds were reported in most districts, and pressure continued to rise at almost all stations; but in the case of temperature there was a rather rapid fall, particularly in Behar, the fall in the mean temperature in several cases in this district equalling from 3° to 5°; but notwithstanding this, both temperature and pressure were both generally distinctly in excess of the normal. On the 12th a rapid fall of pressure commenced, amounting generally to about a twentieth of an inch, and on this date the fall of temperature had spread from Behar to South Bengal and Orissa, where on this day temperature was 2° to 3° below the normal, though in other parts of the province there was a distinct excess. On the 13th variable and light winds were generally reported, pressure again fell rapidly, the fall averaging about three-hundredths of an inch, while temperature had risen over the greater part of the province. On the 14th southerly winds were reported over a considerable part of the province, pressure again fell rapidly, the fall exceeding a twentieth of an inch at many stations, and thus became from about a twentieth to nearly a tenth of an inch below the normal over a considerable part of the province; temperature also again rose and became from about 2° to 7° in excess of the normal for the day, the excess at such stations as Arrah, Buxar, and Dehree averaging more than six degrees.

It will thus be seen that though there have been no very large changes in the meteorological conditions from day to day during the week, yet there has been a slow but steady tendency towards the disappearance of the north-east monsoon or cold weather conditions, and to the gradual establishment of the conditions which accompany or immediately precede the transition conditions which obtain between the hot and cold seasons. Throughout the week, therefore, the general tendency has been towards increasing temperature accompanied by rather high humidity at the southern stations and for the gradual establishment of southerly winds over the same area.

Pressure.—Nothwithstanding the low pressures recorded at the close of the week, the mean pressure for the period has been in excess of the normal by amounts which average between two and four-hundredths of an inch, this excess pressure being fairly equally distributed over the whole province.

Temperature.—Has on the average of the whole week been about 3° in excess of the normal in South Behar and Chutia Nagpur, about a degree above the normal in North Behar, and about 2° above it in North Bengal; while in East and South-West Bengal and in Orissa the average mean temperature for the week has been nearly normal.

The actual temperatures during the week, the range from day to night, and their variations from their normal values are best seen in the following table, where the average maximum, minimum and mean temperatures at nine typical stations in different districts of the province are given, together with their normal values. It will be seen that the day temperatures for the week have been generally rather largely in excess of the normal, while the night temperatures have been more nearly normal, and in some cases even below it:—

Table showing the excess or defect of the actual mean temperature from the normal for the week ending 14th February 1890.

	Normal mean maximum temperature for the week ending 14th February.	Actual mean maximum temperature for the week ending 14th February 1890.	Variation of actual mean from the normal.	Normal mean minimum temperature for the week ending 14th February.	Actual mean minimum temperature for the week ending 14th February 1890.	Variation of actual mean from the normal.	Normal mean daily temperature for the week ending 14th February.	Actual mean daily temperature for the week ending 14th February 1890.	Variation of actual mean from the normal.
Cuttack	88·6	89·2	+0·6	64·5	64·7	+0·2	76·5	77·0	+0·5
Calcutta	80·3	81·6	+1·3	59·2	55·6	−3·6	69·7	68·6	−1·1
Dacca	80·8	82·0	+1·2	56·9	54·7	−2·2	68·8	68·4	−0·4
Burdwan	81·7	84·4	+2·7	57·4	53·4	−4·0	69·5	68·9	−0·6
Patna	76·0	80·2	+4·2	51·3	51·8	+0·5	63·6	66·0	+2·4
Gya	79·8	83·1	+3·3	55·4	55·7	+0·3	67·6	69·4	+1·8
Purneah	76·7	79·1	+2·4	49·5	47·6	−1·9	63·1	63·4	+0·3
Hazaribagh	76·0	79·8	+3·8	52·7	55·0	+2·3	64·3	67·4	+3·1
Darjeeling	43·9	50·7	+6·8	31·6	38·4	+6·8	37·7	44·5	+6·8

Rainfall.—Except for a few drops of rain at Darjeeling on the 8th, the whole province has been rainless throughout the week.

The following table gives the summary of the temperature and rainfall data of each of the seven meteorological divisions of the province for the week ending Friday, the 14th of February 1890 :—

Meteorological Divisions.	Temperature						Rainfall									
	Highest observed during week.	Lowest observed during week.	Averages for week.			Average mean of week above or below normal mean of week.	Of week.			Rainy days.			Since 1st of month.		Since 15th May 1889.	
			Of highest of each day.	Of lowest of each day.	Of mean for each day.		Average.	Normal average.	Variation.	Average number in week.	Normal average number in week.	Variation.	Average.	Normal average.	Average	Normal average.
Orissa	89·4	53·5	84·2	62·6	73·6	– 0·4	Nil	0·24	–0·24	0·0	0·6	–0·6	Nil	0·48	62·10	53·94
South-West Bengal ...	90·3	47·8	83·5	55·2	69·4	+0·2	Nil	0·26	–0·26	0·0	0·5	–0·5	Nil	0·65	52·8(	52·59
East Bengal	84·6	49·0	80·8	53·8	67·3	–0·4	Nil	0·34	–0·34	0·0	0·6	–0·6	Nil	0·62	76·56	74·90
North Bengal*	83 9	46·2	80·9	50·2	65·6	+1·8	Nil	0·21	–0·21	0·0	0·5	–0·5	Nil	0·33	73·54	70 76
North Behar*	87·4	44·9	79·0	47·7	63·3	+1·1	Nil	0·20	–0·20	0·0	0·5	–0 5	Nil	0 31	57·89	49·10
South Behar	86·3	46·9	82·1	52·6	67·3	+ 3·0	Nil	0·12	–0·12	0·0	0·4	–0·4	Nil	0·29	44·16	44·15
Chutia Nagpur	83·5*	47·5*	80·4*	54·3*	67 4*	+2·8*	Nil	0·24	–0·24	0·0	0·6	–0·6	Nil	0·47	48·08	50·04

* Julpiguri, Chupra and Chyebassa not included.

Meteorological Office, Bengal; *The 18th February* 1890.

A. Pedler,
Meteorological Reporter to the Govt. of Bengal.

Results of the Barometrical and Thermometrical Observations taken at the Meteorological Office, Chowringhee, from 9th to 15th February 1890.

Month.	Date.	Pressure at 10 A.M. corrected and reduced to 32° Fahr.	Temperature.						Hygrometry.			Rainfall past 24 hours.
			Daily mean.	Maximum.	Range.	Minimum.	Dry bulb at 10 A.M.	Wet bulb at 10 A.M.	Vapour tension at 10 A.M.	Dew point at 10 A.M.	Humidity at 10 A.M.	
		Inches.	°	°	°	°	°	°	Inches.	°	%	Inches.
Feb. 1890 ...	9th ...	30·090	70·0	83·1	26 2	56·9	74·6	63·5	·440	55·4	52	Nil
,, ,, ...	10th ...	·140	69·9	82·5	25·2	57·3	74·6	64·6	·477	57·6	56	.....
,, ,, ...	11th ...	·144	68 6	82·1	27·1	55·0	73·6	60·7	·360	49·9	43	.....
,, ,, ...	12th ...	·097	67·4	81·9	29·0	52·9	70·8	60·2	·382	51·5	51	.....
,, ,, ...	13th ...	·058	70·0	84 0	28·1	55·9	74·6	63·5	·440	55·4	52	.....
,, ,, ...	14th ...	29·964	73·4	85·9	25·0	60·9	75·4	67·6	·573	62 8	65	.....
,, ,, ...	15th ...	·926	74·8	84·7	19·8	64·9	72·6	67·6	·510	59 5	76	.....

		Inches.
The mean 10 A.M. pressure of the seven days		30·060
		°
The mean temperature of the seven days		70·6
The extreme variation of temperature		33·0
The maximum temperature		85·9
		%
The mean 10 A.M. relative humidity of the seven days		56
		Inches.
The total fall of rain from 9th to 15th February 1890		Nil

The daily mean temperatures are the crude means of maximum and minimum temperatures.

C. Little,
For Meteorological Reporter to the Govt. of India.

Meteorological Office, India;
The 17th February 1890.

MEMORANDUM.

THE birth and death returns from the principal Municipalities in Bengal afford the following results for the week ending 1st February 1890 :—

1. Births and deaths were registered in the proportions, respectively, of 21·7 and 23·7 per 1,000 of population, against 22·8 and 18·5 per 1,000, respectively, during the preceding week ending 25th January, indicating a falling off in the registration of births and a large increase in that of deaths.

2. The highest proportions of births and deaths were returned from the following Municipalities :—

Births.	Ratio per *mille.*	*Deaths.*	Ratio per *mille.*
Arrah	41·9	Poori	100·7
Naraingan j	37·3	Serampore	58·9
Darjiling	37·0	Jessore	55·1
Serampore	35·3	Hughli and Chinsurah ...	44·3
Bhagulpore	35·3	Naraingan j	41·4
Comillah	34·7	Comillah	38·5
Chupra	34·2	Utterpara	37·7
Monghyr	33·4	Howrah	33·8
		Burdwan	33·6
		Midnapore	31·0
		Gya	30·7

3. The following table shows that, as compared with the results of the preceding week, there was a noticeable increase in the death-rates from fever and the maladies classed under the head of "Other causes," but only fractional differences in the case of the other diseases :—

	Ratio per *mille* during the weeks ending—	
	1st February 1890.	25th January 1890.
Cholera	2·2	1·8
Small-pox	·6	·3
Fever	9·3	7·9
Bowel-complaints	3·9	3·3
Injury	·4	·5
Other causes	7·3	4·7

4. Of the diseases above named, cholera, fever, bowel-complaints and "other causes" proved conspicuously fatal in the following Municipalities :—

Cholera.	Ratio per *mille.*	*Fever.*	Ratio per *mille.*	*Bowel-complaints.*	Ratio per *mille.*	*Other causes.*	Ratio per *mille.*
Poori	39·8	Jessore ...	49·0	Naraingan j ...	16·5	Serampore ...	27·5
Naraingan j ...	16·6	Comillah ...	30·8	Serampore ...	13·7	Midnapore ...	17·0
Serampore ...	9·8	Poori ...	21·0	Hughli and Chinsurah ...	13·1	Gya ...	13·7
Howrah ...	3·4			Burdwan ...	10·7	Chittagong ...	11·7
Gya ...	2·7					Poori ...	10·5

Small-pox continued to rage with virulence in the Poori Municipality, yielding a death-rate of as much as 21 per 1,000 of population.

5. The death-rates under the heads of *Sex*, *Class* and *Age* stood as follows :—

According to Sex.	Ratio per *mille.*	*According to Class.*	Ratio per *mille.*	*According to Age.*	Ratio per *mille.*
Males	26·4	Christians ...	22·4	Under 1 year	147·5
Females	20·8	Hindus ...	24·9	1 and under 5 years	26·3
Ratio of male deaths to every 100 female deaths, calculated on the proportion such mortality bears to the total male and female population ...	130	Mahomedans ...	20·8	5 „ 10 „	10·8
				10 „ 15 „	9·2
				15 „ 20 „	18·0
				20 „ 30 „	12·6
				30 „ 40 „	16·3
				40 „ 50 „	23·3
				50 „ 60 „	23·5
				60 years and upwards	79·1

W. H. GREGG, *Dip. Publ. Health, Camb.*,
Sanitary Commissioner for Bengal.

The 17th February 1890.

Statement showing the Results of the Registration of Births and Deaths in the principal Municipalities in Bengal during the week ending 1st February 1890.

1	2	3			4			5			6	7							8						9	10		11		12
		POPULATION.			BIRTHS.							MORTALITY ACCORDING TO—																		
												Disease.																		
					NUMBER OF—			RATIO PER 1,000 OF POPULATION PER ANNUM.				DEATHS FROM—							RATIO PER 1,000 OF POPULATION PER ANNUM.											
DISTRICTS.	NAMES OF MUNICIPALITIES.	Males.	Females.	Total.	Males.	Females	Total.	Males.	Females.	Total.	Ratio of male births to every 100 female births.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injury.	Other diseases.	All causes.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injury.	Other diseases.	All causes.	Ratio of deaths per 1,000 of population per annum in the previous week.	Sex. DEATHS. Males.	Females.	RATIO PER 1,000 OF POPULATION PER ANNUM. Males.	Females.	Ratio of male deaths to every 100 female deaths, calculated on the proportion such mortality bears to the total male and female population.
Burdwan ...	Burdwan	19,063	16,017	34,080	6	7	13	9·1	10·7	19·8	85	...	...	9	7	.	6	22	...	...	13·7	10·7	..	9·1	33·6	22·9	9	13	25·9	42·2	59
Midnapore ...	Midnapore ...	16,927	16,633	33,560	7	4	11	10·8	6·2	17·0	175	...	...	4	5	...	11	20	...	...	6·2	7·7	...	17·0	31·0	12·4	11	9	33·8	28·1	118
Hughli ...	Hughli and Chinsurah.	15,858	15,829	31,687	7	5	12	11·5	8·2	19·7	140	2	...	11	8	1	5	27	3·3	...	18·1	13·1	1·6	8·2	44·3	36·1	16	11	52·5	36·1	144
Serampore ...	Serampore ...	13,559	12,937	26,496	9	9	18	17·6	17·6	35·3	100	5	1	3	7	...	14	30	9·8	2·0	5·9	13·7	...	27·5	58·9	25·5	21	9	80·5	36·2	223
	Utterpara	3,046	2,464	5,510	1		1	9·4	..	9·4	No female birth.	...	...	...	2	...	2	4	...	...	...	18·8	...	18·8	37·7	18·9	2	2	34·1	42·2	81
Howrah ...	Howrah	53,153	37,660	90,813	24	16	40	13·7	9·2	22·9	150	6	...	19	17	1	16	59	3·4	..	10·9	9·7	·6	9·2	33·8	18·9	41	18	40·1	24·9	166
	Bali	7,836	6,979	14,815	2	3	5	7·0	10·3	17·5	66	...	...	5	..	..	2	7	...	...	17·5	..	...	7·0	24·6	14·0	6	1	39·9	7·5	557
Nuddea ...	Kishnaghur ...	13,263	14,214	27,477	6	5	11	11·3	9·5	20·8	120	1	...	8	1	...	2	12	1·9	...	15·1	1·9	...	3·8	22·7	13·2	8	4	31·4	14·6	221
	Ranaghat	4,028	4,655	8,683	2	.	2	12·0	..	12·0	No female birth.	...	.	1	..	...	.	1	..	...	6·0	.	...	..	6·0	18·0	1	...	12·9	...	No female death.
	Santipore	13,708	15,979	29,687	2	1	3	3·5	1·7	5·2	200	...	..	1	..	...	..	1	...	...	1·7	...	..	...	1·7	17·5	.	1	...	3·3	No male death.
Jessore ...	Jessore	4,830	3,665	8,495	...	1	1		6·1	6·1	No male birth.	1	..	8	..	..	...	9	6·1	...	49·0	...		...	55·1	49·0	4	5	43·1	70·9	61
Rajshahye ...	Rampore Beauleah	10,766	9,025	19,791	2	5	7	5·3	13·1	18·4	40	...	...	6	1	1	2	10	...	..	15·8	2·6	2·6	5·3	26·3	10·5	6	4	29·0	23·0	126
Darjiling ...	Darjiling	4,579	2,479	7,018	2	3	5	14·8	22·2	37·0	66	..	..	2	...	...	1	3	...	..	14·8	...	...	7·4	22·2	22·2	2	1	22·7	21·3	105
Dacca ...	Dacca	42,782	37,379	80,161	15	10	25	9·7	8·5	16·2	150	2		8	3	...	11	24	1·3	..	5·2	1·9	...	7·1	15·6	16·2	15	9	18·2	13·5	150
	Naraingani ...	7,605	4,956	12,561	4	5	9	16·6	20·7	37·3	80	4	...	1	4	1	...	10	16·6	...	4·1	16·5	4·1	...	41·4	29·0	6	4	41·0	42·0	97
Chittagong ...	Chittagong ...	13,340	8,790	22,130	3	2	5	7 0	4·7	11·7	150	...	.	3	1	..	5	9	...	...	7 0	2·3	...	11·7	21·1	30·5	6	3	23·4	17·7	135
Tipperah ...	Comillah	8,153	5,353	13,506	5	4	9	19·3	15·4	34·7	125	...	...	8	2	...		10	...	...	30 8	7·7	...	...	38·5	42·4	6	4	38·3	38·9	100
Patna	Patna City ...	76,762	81,475	160,237	18	25	43	5·8	8·1	14 0	72	...	1	9	4	1	6	21	...	·3	2·9	1·3	·3	1·9	6·8	6·2	9	12	5·9	7·7	72
Gya	Gya	38,290	37,831	76,121	13	11	24	8·9	7·5	16·4	118	4	...	21	...	...	20	45	2·7	..	14·3	...	...	13·7	30·7	24·6	24	21	32·6	28·9	114
Shahabad ...	Arrah	20,960	22,505	43,465	20	15	35	23·9	17 9	41·9	133	...	...	4	2	..		6	...	...	4·8	2·4	...	...	7·2	9·6	4	2	9·9	4·6	225
Mozufferpore .	Mozufferpore ...	23,084	19,658	42,742	6	10	16	7·3	12·2	19·5	60	..	...	2	1	4	5	12	...	..	2·4	1·2	4·9	6·1	14·6	29·1	6	6	13·5	15·9	86
Durbhanga ...	Durbhanga ...	33,774	32,322	66,096	10	20	30	7·9	15·7	23·6	50	..	..	15	...	...	11	26	...	...	11·8	...	...	8·7	20·5	20·4	12	14	18·5	22·5	82
Sarun	Chupra	25,116	26,554	51,670	11	23	34	11·1	23·1	34·2	47	...	.	2	2	...	8	12	...	...	2·0	2·0	..	8·1	12·1	19·1	6	6	12·4	11·7	108
Bhagulpore ...	Bhagulpore ...	29,640	27,813	57,453	17	22	39	15·4	19 9	35·3	77	...	...	10	5	...	19	25	...	...	9·0	4·5	..	9·0	22·6	14·5	13	12	22·8	22·4	100
Monghyr ..	Monghyr	28,154	29,366	57,520	19	18	37	17·2	16·3	33·4	105	...	...	16	2	...	8	26	...	...	14·5	1·8	...	7·2	23·5	16·3	16	10	29·6	17·7	170
Purneah ...	Purneah	8,463	6,553	15,016	1	1	2	3·4	3·4	6·9	100	...	...	4	1	..	...	5	...	..	13·9	3·4	...	...	17·3	24·2	2	1	24·6	7·9	340
Poori	Poori	13,247	11,537	24,784	1	4	5	2·1	8·4	10 5	25	19	10	10	4	...	5	48	39·8	21·0	21·0	8·4	...	10·5	100·7	62·9	26	22	102·1	99·2	103
	Total ...	550,986	510,588	1,061,574	213	229	442	10·4	11·2	21·7	93	44	12	190	79	9	150	484	2·2	·6	9·3	3·9	·4	7·3	23·7	13·5	280	204	26·4	20·8	130

DISTRICTS.	NAMES OF MUNICIPALITIES.	MORTALITY ACCORDING TO— Class. Deaths among—					Ratio per 1,000 of Population per annum.				
		Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.	Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.
Burdwan	Burdwan	...	14	8	...	...	...	30·7	40·5	...	...
Midnapore	Midnapore	..	13	7	...	...	...	26·1	50·4	...	...
Hughli	Hughli and Chinsurah	...	22	5	...	...	...	45·3	42·2	...	...
Serampore	Serampore	...	29	1	...	...	..	59·8	55·4	...	...
	Utterpara	..	4	...	...	...	...	39·1	...	...	...
Howrah	Howrah	1	43	15	...	...	27·5	32·8	38·0	..	...
	Bali	...	6	1	...	...	...	23·3	39·7	...	...
Nuddea	Kishnaghur	...	8	4	...	...	...	22·3	25·1	...	...
	Ranaghat	...	1	...	...	...	...	7·1	...	...	...
	Santipore	..	1	...	...	...	...	2·5	...	...	...
Jessore	Jessore	1	1	7	...	...	321·0	11·5	95·2	...	...
Rajshahye	Rampore Beauleah	...	7	3	...	...	...	36·7	15·9	...	...
Darjiling	Darjiling	...	3	...	...	...	...	34·0	...	...	...
Dacca	Dacca	...	14	10	...	...	..	18·1	13·2	...	...
	Naraingunj	..	8	2	...	...	...	65·8	16·9	...	...
Chittagong	Chittagong	..	1	8	...	...	...	9·0	27·2	...	...
Tipperah	Comillah	..	4	6	...	...	...	35·0	42·2	...	...
Patna	Patna City	...	15	6	...	...	...	6·6	7·6	...	...
Gya	Gya	..	36	9	...	...	...	31·2	29·1	..	..
Shahabad	Arrah	...	5	1	...	...	...	8·4	4·2	...	...
Mozufferpore	Mozufferpore	...	6	4	...	...	...	13·9	16·7	...	...
Durbhanga	Durbhanga	...	21	5	...	...	...	22·6	14·8	...	...
Saruf	Chupra	...	7	5	...	...	...	9·2	21·8	...	...
Bhagulpore	Bhagulpore	1	20	4	...	...	134·7	26·2	12·1	...	...
Monghyr	Monghyr	...	22	4	...	...	...	25·6	16·5	...	...
Purneah	Purneah	...	2	3	...	...	...	11·3	27·6	..	...
Poori	Poori	..	48	...	...	...	...	101·7	...	..	...
	TOTAL	3	363	118	...	...	22·4	24·9	20·8	...	

DISTRICTS.	NAMES OF MUNICIPALITIES.	MORTALITY ACCORDING TO— Age. Deaths.										Ratio per 1,000 of Population per annum.								
		Under 1 year.	1 and under 5 years.	5 and under 10 years.	10 and under 15 years.	15 and under 20 years.	20 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 and under 60 years.	60 years and upwards.	Under 1 year.	1 and under 5 years.	5 and under 10 years.	10 and under 15 years.	15 and under 20 years.	20 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 and under 60 years.	60 years and upwards.
Burdwan	Burdwan	4	1	1	2	1	2	4	1	2	4	315·2	23·0	22·3	41·3	16·6	13·1	30·2	11·8	42·4	140·4
Midnapore	Midnapore	1	...	...	..	..	1	1	5	3	9	70·0	...	...	...	...	7·1	9·4	69·8	75·6	255·7
Hughli	Hughli and Chinsurah	2	3	2	..	..	4	...	8	4	3	120·5	76·3	36·0	.	20·7	33·5	...	99·7	80·0	75·3
Serampore	Serampore	6	5	1	..	...	4	2	5	2	5	439·4	144·0	26·7	...	...	38·6	20·9	77·1	54·3	186·9
	Utterpara	1	.	..	...	...	1	...		...	2	323·0	...	...	...	...	45·2	...	...	.	400·0
Howrah	Howrah	9	7	2	.	9	11	11	9	3	5	226·9	65·7	16·5	...	14·2	25·3	29·7	39·8	28·4	69·3
	Bali	1	1	1	...	...	1	...	...	2	1	143·6	52·1	48·8	...	...	15·5	...	...	99·2	71·0
Nuddea	Kishnaghur	1	...	1	...	1	...	6	1	...	2	104·8	...	15·1	...	25·3	...	72·9	15·9	...	60·2
	Ranaghat	...	...	...	...	..	.	1	...	.	...	...	...	...	...	...	...	41·7	...	...	...
	Santipore	..	...	..	...	...	...	...	..	1	...	...	...	...	.	...	...	...	...	22·6	...
Jessore	Jessore	1	3	...	...	1	...		1	2	1	268·9	315·8	...	...	71·0	...	...	49·5	184·7	113·5
Rajshahye	Rampore Beauleah	1	3	2	...	...	...	1	2	...	1	128·1	110·0	50·0	...	...	...	25·9	42·4	...	54·0
Darjiling	Darjiling	...	1	...	...	...	...	...	..	...	2	...	80·9	...	...	...	...	..	...	...	615·4
Dacca	Dacca	5	1	1	3	6	3	2	2	..	1	137·0	7·1	5·2	19·6	42·7	10·2	8·9	12·4	...	9·3
	Naraingunj	2	...	...	1	1	1		2	...	3	372·8	..	...	45·8	49·8	19·5	...	74·7	...	239·3
Chittagong	Chittagong	2	..	..	...	...	1	2	...	1	3	184·7	...	...	...	...	11·2	31·2	...	47·9	196·0
Tipperah	Comillah	1	...	...	..	1	2	1	...	1	4	175·1	...	...	...	41·3	37·7	26·1	...	64·9	506·8
Patna	Patna City	3	2	1	1	1		2	1	5	5	36·2	7·1	3·1	3·6	4·7	...	4·5	2·8	15·4	18·8
Gya	Gya	7	7	3	1	...	3	4	4		16	208·4	57·3	22·3	7·7	...	10·6	16·3	21·3	...	161·6
Shahabad	Arrah	2	.	1	1	...	1	.	...	...	1	80·7	...	10·1	11·5	...	6·6	.	...	...	15·0
Mozufferpore	Mozufferpore	4	1	2	...	...	..	...	2	1	2	217·8	13·9	23·1	...	...	..	..	29·8	16·0	42·7
Durbhanga	Durbhanga	4	1	1	3	1	2	3	...	1	10	133·6	6·8	6·6	28·1	12·9	7·8	14·0		11·9	162·8
Saruf	Chupra	2	2	...	...	...	1		2	1	4	73·7	20·1	...	...	..	5·6	...	17·1	12·6	61·1
Bhagulpore	Bhagulpore	3	2	...	..	5	1	5	2	1	6	138·7	19·2	...		62·2	4·8	28·0	16·5	12·2	86·6
Monghyr	Monghyr	6	3	1	1	2	2	3	2	1	5	210·1	25·1	7·4	9·1	27·5	10·1	17·5	16·3	13·1	72·5
Purneah	Purneah	2	...	..	...	...	.	1	2	.	...	367·5	...	...	..	...	...	18·2	56·1	...	..
Poori	Poori	2	4	3	4	5	10	6	5	4	5	343·2	115·7	69·6	110·9	139·9	98·4	77·0	75·2	93·2	144·0
	TOTAL	72	47	23	17	28	51	55	56	35	100	147·5	26·3	10·8	9·2	18·0	12·6	16·3	23·3	23·5	79·1

OFFICE OF SANITARY COMMISSIONER FOR BENGAL,

W. H. GREGG, *Dip. Publ. Health, Camb.*,

PUBLIC WORKS DEPARTMENT, IRRIGATION BRANCH, BENGAL.

Statements showing Quantities of Goods carried during the month of November 1889.

ORISSA CIRCLE.

TALDUNDA CANAL SYSTEM.

LENGTH OF CANAL OPEN { TALDUNDA CANAL, 27 MILES. / MACHGONG ,, 4 ,,

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	PRIVATE. Quantity. Tons.	Value. Rupees.	REMARKS.
...	1. Grain ...	.....	.....	... ..	.....	.....	.....	
...	2. Cotton ...	... ..	.....	.....	.....	.....	... ..	
1	3. Oilseeds ...	...	8	8	630	8	630	
2	4. Salt ...	... .	20	20	1,938	20	1,938	
...	5. Piece-goods ...	.....	.....	.....	.....	.....	.....	
...	6. Metal ...	.....	.....	.....	...	.....	... ..	
2	7. Building materials	.....	25	25	60	25	60	
...	8. Miscellaneous ...	.....	... ..	.....	...	... ..	.. ...	
...	9. Fuel ...	.....	.....	.....	.....	.....	.....	
3 rafts	10. Timber No.	.....	43	43	70	43	70	
2 ,,	11. Bamboos ,,	.....	2,300	2,300	30	2,300	30	
5 boats 5 rafts.	12. Total ...	....	53 & 2,343 No.	53 & 2,343 No.	2,728	53 & 2,343 No.	2,728	
10 boats 5 rafts.	13. Total of same month last year.	6	52 & 65 No.	58 & 65 No.	4,009	58 & 65 No.	4,009	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	.....	5	5
15. Total number of boats plying passenger No.	5	.....	5
15½. Total empty boats	8	9	17
16. Total registered tonnage, cargo, private Tons	.....	87	87
16½. Ditto ditto, Government Tons	.....	.....	.. ...
17. Total registered tonnage, passenger Tons	107	.....	107
17½. Ditto ditto, empty Tons	51	140	191
18. Ton-mileage ...	2,279	3,382	5,661
19. Estimated value of cargo Rs.	.....	2,628	2,628
20. Number of passengers ...	127	.....	127
21. Rafts, bamboos No.	.....	2,300	2,300
22. Do., bullahs ,,	.....	43	43
23. Estimated value of rafts Rs.	.....	100	100
24. Tollage on boats ,,	21-2-0	29-10-0	50-12-0
25. Compounded tollage on boats Rs.	.....	.....	.....
26. Tollage on rafts ,,	.....	5-0-6	5-0-6
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-2·88
28. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	.....

	Rs. A. P.
Total tollage of month—24 + 25 + 26 ...	55 12 6
Total tollage of same month last year ...	133 14 0

Memorandum of Tollage.

	Rs. A. P.
1. Balance not recovered on the 1st of the month ..	.....
2. Tollage per month ...	55 12 6
3. Total ...	55 12 6
4. Amount credited in the accounts of the month ...	43 4 6
5. Balance due at the end of the month ...	12 8 0

KENDRAPARA CANAL SYSTEM.

LENGTH OF CANAL OPEN, 75 MILES.

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	PRIVATE. Quantity. Tons.	Value. Rupees.	REMARKS.
78	1. Grain ...	213	553	766	39,460	766	39,460	
7	2. Cotton ...	51	19	70	19,650	70	19,650	
4	3. Oilseeds ...	9	19	28	2,210	28	2,210	
13	4. Salt ...	6	30	36	2,870	36	2,870	
2	5. Piece-goods ...	.....	46	46	2,800	46	2,800	
...	6. Metal ...	.....	...	.....	.....	.....	.....	
37	7. Building materials	.....	1,028	1,028	14,130	471	12,160	
98	8. Miscellaneous ...	440	308	748	43,570	748	43,570	
8	9. Fuel ...	19	5	24	160	24	160	
3 rafts	10. Timber ...	.....	1,056 c. ft.	1,056 c. ft.	450	1,056 c. ft.	450	
3 „	11. Bamboos ...	.....	3,550 „	3,550 „	160	3,550 „	160	
247 & 6 rafts.	12. Total ...	738	2,008 & 4,606 c. ft.	2,746 & 4,606 c. ft.	1,25,460	2,189 & 4,606 c. ft.	1,23,490	
345 & 16 rafts.	13. Total of same month last year.	1,083	1,475 & 77,289 No.	2,558 & 77,289 c. ft	3,04,430	2,278 & 77,289 c. ft.	3,01,910	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	114	133	247
15. Total number of boats plying passenger No.	52	57	109
15½. Ditto empty boats „	191	130	321
16. Total registered tonnage, cargo, private Tons	1,402	2,540	3,942
16½. Ditto ditto, Government „	.....	826	826
17. Total registered tonnage, passenger Tons	2,331	1,971	4,302
17½. Ditto ditto empty boats „	1,361	569	1,930
18. Ton-mileage ...	225,132	255,152	480,284
19. Estimated value of cargo Rs.	53,260	71,590	1,24,850
20. Number of passengers ...	1,943	1,736	3,679
21. Rafts, bamboos C. ft.	.....	3,550	3,550
22. Do., timber „	... ..	1,056	1,056
23. Estimated value of rafts Rs.	.....	610	610
24. Tollage on boats „	1,874-7-10	2,875-10-9	4,750-2-7
25. Compounded tollage on boats Rs.	.....	.....	.....
26. Tollage on rafts „	.....	34-2-8	34-2-8
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-1·9
28. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	0-11-10

	Rs.	A.	P.
Total tollage of month—24 + 25 + 26 ...	4,784	5	3
Total tollage of same month last year ...	4,657	12	8

Memorandum of Tollage.

	Rs.	A	P.
1. Balance not recovered on the 1st of the month ...	4,319	0	11
2. Tollage per month ...	4,784	5	3
Amount erroneously charged now written back	2	7	0
3. Total ...	9,100	15	2
4. Amount credited in the accounts of the month ...	5,057	1	5
5. Balance due at the end of the month ...	4,043	13	9

HIGH LEVEL CANAL, RANGE I.

LENGTH OF CANAL OPEN, 33 MILES.

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE.				PRIVATE.		REMARKS.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
45	1. Grain ...	118	.....	118	10,130	118	10,130	
4	2. Cotton ...	8	2	10	3,000	10	3,000	
11	3. Oilseeds ..	51	.....	51	4,150	51	4,150	
46	4. Salt ...	.....	136	136	11,400	136	11,400	
...	5. Piece-goods .	...	.....	.....	.....	.....	.....	
...	6. Metal ...	.....	.....	.....	.....	.....	.....	
49	7. Building materials	39	387	426	1,750	73	1,470	
38	8. Miscellaneous ...	70	35	105	9,690	105	9,690	
14	9. Fuel ...	110	.....	110	310	110	310	
...	10. Timber ...	.....	.....	.....	.....	.....	.....	
...	11. Bamboos ...	.....	.....	.....	.....	.....	.....	
207	12. Total ...	396	560	956	40,430	603	40,150	
175 & 4 rafts.	13. Total of same month last year ...	494 & 638 No.	113	607 & 638 No.	42,340	607 & 638 No.	42,340	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	106	101	207
15. Total number of boats plying passenger No.	7	6	13
15½. Ditto empty boats „	37	84	121
16. Total registered tonnage, cargo, private Tons	731	469	1,200
16½. Ditto ditto, Government „	.....	499	499
17. Total registered tonnage, passenger Tons	79	76	155
17½. Ditto empty boats „	122	377	499
18. Ton-mileage ...	26,900	29,014	55,914
19. Estimated value of cargo Rs.	22,760	17,670	40,430
20. Number of passengers ...	39	35	74
21. Rafts, bamboos C. ft	.....	.....	.....
22. Do., timber „	.....	.....	.....
23. Estimated value of rafts Rs.	.....	.....	.....
24. Tollage on boats „	303-0-7	254-14-9	557-15-4
25. Compounded tollage on boats Rs.	.....	.....	.....
26. Tollage on rafts „	.....	...	.....
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-1·9
28. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	.....

	Rs.	A.	P.
Total tollage of month—24 + 25 + 26 ...	557	15	4
Total tollage of same month last year	451	1	9

Memorandum of Tollage.

	Rs.	A.	P.
1. Balance not recovered on the 1st of the month	72	14	
2. Tollage per month ...	557	15	
3. Total ...	628	13	1
4. Amount credited in the accounts of the month	327	7	
5. Balance due at the end of the month ...	301	6	

HIGH LEVEL CANAL, RANGE II.

LENGTH OF CANAL OPEN, 12½ MILES.

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE.				PRIVATE.		REMARKS.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
10	1. Grain ...	17	4	21	895	21	895	
2	2. Cotton ...	6	5	11	1,037	11	1,037	
1	3. Oilseeds ..	.....	1	1	14	1	14	
2	4. Salt ...	.....	6	6	770	6	770	
12	5. Piece-goods ...	.....	15	15	4,060	15	4,060	
1	6. Metal ...	3	.....	3	260	3	260	
49	7. Building materials		434	434	297	4	79	
4.	8. Miscellaneous ...	6	9	15	2,345	15	2,345	
1	9. Fuel ...	.....	3	3	9	3	9	
rafts	10. Timber ...	.....	1,374 c. ft.	1,374 c. ft.	687	1,374 c. ft.	687	
...	11. Bamboos ...	.....	.....	.....	.....	.....	.....	
32 & rafts.	12. Total ...	32	477 & 1,374 c. ft.	509 & 1,374 c ft.	10,374	79 & 1,374 c. ft.	10,156	
30 & rafts.	13. Total of same month last year.	122	159 & 28 No.	281 & 28 No.	15,767	173½ & 28 No.	15,517	

	Up.	Down.	Total.
. Total number of boats plying cargo ... No.	10	72	82
. Total number of boats plying passenger No.	3	3	6
½. Ditto empty boats „	64	10	74
. Total registered tonnage, cargo and boat Tons	64	954	1,018
½. Ditto Govt. boat „	.....	860	860
. Total registered tonnage, passenger Tons	18	8	26
½. Ditto ditto empty „	383	31	414
. Ton-mileage	5,261	11,124	16,385
. Estimated value of cargo Rs.	1,496	8,191	9,687
. Number of passengers ...	101	265	366
. Rafts, bamboos C. ft.	... ..	.....	.....
. Do., bullahs „	.....	1,374	1,374
. Estimated value of rafts Rs.	... ..	687	687
. Tollage on boats „	43-12-3	171-8-9	215-5-0
. Compounded tollage on boats Rs.	.....	... ..	.....
. Tollage on rafts „	.....	11-0-9	11-0-9
. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-2·52
. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	0-12-9

	Rs. A. P.
Total tollage of month—24 + 25 + 26 ...	226 5 9
Total tollage of same month last year ...	140 12 3

Memorandum of Tollage.

	Rs. A. P.
1. Balance not recovered on the 1st of the month ...	.....
2. Tollage per month ...	226 5 9
3. Total ...	226 5 9
4. Amount credited in the accounts of the month ...	202 2 3
5. Balance due at the end of the month ...	24 3 6

HIGH LEVEL CANAL, RANGE III.

LENGTH OF CANAL OPEN, 19 MILES.

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	PRIVATE. Quantity. Tons.	Value. Rupees.	REMARKS.
1	1. Grain ...	3½	.....	3½	96	3½	96	
...	2. Cotton ...	.....	.....	.....	.....	.....	.....	
...	3. Oilseeds ...	.....	.....	.....	.....	.....	.....	
1	4. Salt ...	.....	8½	8½	948	8½	948	
...	5. Piece-goods ...	.....	.....	.....	.....	.....	.....	
...	6. Metal ...	.....	.....	.....	.....	.....	.....	
22	7. Building materials	.....	218	218	74	.....	.....	
...	8. Miscellaneous ...	.....	.....	.....	.....	.....	.....	
...	9. Fuel ...	.....	.....	.....	.....	.....	.....	
14 rafts	10. Timber ...	.....	2,064 c. ft.	2,064 c. ft.	691	2,064 c. ft.	691	
2 „	11. Bamboos ...	.....	125 No.	125 No.	3	125 No.	3	
24 & 16 rafts.	12. Total ...	3½	226½ & 2,064 c. ft. 125 No.	230 & 2,064 c. ft. 125 No.	1,812	12 & 2,064 c. ft. 125 No.	1,738	
32 & 7 rafts.	13. Total of same month last year.	62	24 & 159 No.	86 & 159 No.	6,115	86 & 159 No.	6,115	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	1	23	24
15. Total number of boats plying passenger No.	.....	.....	.....
15½. Ditto empty ditto „	24	2	26
16. Total registered tonnage, cargo, including boat Tons	7	453	460
16½. Ditto Govt. ditto „	.....	436	436
17. Total registered tonnage, passenger Tons	.....	.....	.....
17½. Ditto empty ditto „	172	2	174
18. Ton-mileage ...	879	632	1,011
19. Estimated value of cargo Rs.	96	1,022	1,118
20. Number of passengers ...	207	220	427
21. Rafts, bamboos No	.....	125	125
22. Do., bullahs C. ft.	.....	2,064	2,064
23. Estimated value of rafts Rs.	.....	694	694
24. Tollage on boats „	15-4-6	77-11-6	93-0-0
25. Compounded tollage on boats Rs.	.....	.....	.....
26. Tollage on rafts „	.....	16-0-9	16-0-9
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-1-5·66
28. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	0-12-4

	Rs. A. P.
Total tollage of month—24 + 25 + 26 ...	109 0 9
Total tollage of same month last year	49 8 6

Memorandum of Tollage.

	Rs. A. P.
1. Balance not recovered on the 1st of the month ...	.....
2. Tollage per month ...	109 0 9
3. Total ...	109 0 9
4. Amount credited in the accounts of the month ...	95 1 6
5. Balance due at the end of the month ...	13 15 3

JAJEPORE CANAL.

LENGTH OF CANAL OPEN, 6½ MILES.

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE.				PRIVATE.		REMARKS.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
2	1. Grain ...	.....	7	7	297	7	297	
1	2. Cotton ...	.....	2½	2½	700	2½	700	
...	3. Oilseeds ...	.....	.....	.....	.....	.....	.....	
...	4. Salt ...	.....	.....	.....	.....	.....	.....	
1	5. Piece-goods ...	.....	1	1	500	1	500	
...	6. Metal ...	.....	.....	.....	.....	.....	.....	
...	7. Building materials	.....	.....	.....	.....	.....	.....	
33	8. Miscellaneous ...	.....	16	16	1,769	16	1,769	
1	9. Fuel ...	4	.....	4	28	4	28	
7 rafts.	10. Timber ...	.....	708 c. ft.	708 c. ft.	111	708 c. ft.	111	
...	11. Bamboos ...	.....	.....	.....	.....	.....	.....	
38 & 7 rafts.	12. Total ...	4	26½ & 708 c. ft.	30½ & 708 c. ft.	3,405	30½ & 708 c. ft.	3,405	
7 & 4 rafts.	13. Total of same month last year.	29 & 48 No.	3	32 & 48 No.	1,081	8 & 48 No.	1,039	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	1	37	38
15. Total number of boats plying passenger No.	1	2	3
15½. Ditto empty boats „	30	5	35
16. Total registered tonnage, cargo and boat Tons	8	53	61
16½. Ditto Govt. boat „	4	4	8
17. Total registered tonnage, passenger Tons	5	10	15
17½. Ditto, empty boats „	39	25	64
18. Ton-mileage ...	172	511	683
19. Estimated value of cargo Rs.	28	3,266	3,294
20. Number of passengers ...	30	20	50
21. Rafts, bamboos C. ft.	.....	.....	.....
22. Do., bullahs „	.....	708	708
23. Estimated value of rafts Rs.	.....	111	111
24. Tollage on boats „	3-15-0	9-12-6	13-11-6
25. Compounded tollage on boats Rs.	.....	.....	.....
26. Tollage on rafts „	.....	2-2-6	2-2-6
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-3·85
28. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	1-1-3

	Rs. A. P.
Total tollage of month—24 + 25 + 26 ...	15 14 0
Total tollage of same month last year ...	9 1 4

Memorandum of Tollage.

	Rs. A. P.
1. Balance not recovered on the 1st of the month ...	.....
2. Tollage per month ..	15 14 0
3. Total ...	15 14 0
4. Amount credited in the accounts of the month ...	0 6 0
5. Balance due at the end of the month ...	15 8 0

SOUTH-WESTERN CIRCLE.

MIDNAPORE CANAL.

LENGTH OF CANAL OPEN, 53 MILES

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE. Quantity—Tons. Up.	Down.	Total.	Value. Rupees	PRIVATE. Quantity. Tons.	Value. Rupees.	REMARKS.
711	1. Grain ...	3,957	376	4,333	2,42,149	4,333	2,42,149	
2	2. Cotton ...	.....	4	4	1,800	4	1,800	
16	3. Oilseeds ...	90	72	162	15,234	162	15,234	
91	4. Salt ...	.....	437	437	83,845	437	83,845	
9	5. Piece-goods ...	8	106	114	3,10,770	114	3,10,770	
17	6. Metal	102	85	187	1,51,986	187	1,51,986	
20	7. Building materials	120	8	128	904	128	904	
299	8. Miscellaneous ...	877	667	1,544	2,80,994	1,544	2,80,994	
29	9. Fuel ...	54	355	409	4,890	409	4,890	
0 rafts	10. Timber ...	19,520 c. ft.	40 c. ft.	19,560 c. ft.	10,668	19,560 c. ft	10,668	
6 „	11. Bamboos ...	1,798 „	100 „	1,898 „	182	1,898 „	182	
194 & 3 rafts.	12. Total ...	5,208 & 21,318 c. ft.	2,110 & 140 c. ft.	7,318 & 21,458 c. ft.	11,03,422	7,318 & 21,458 c. ft.	11,03,422	
317 & 1 rafts.	13. Total of same month last year.	6,317 & 33,598 c. ft.	2,132 & 106 c. ft	8,449 & 33,704 c. ft.	10,66,455	8,449 & 33,704 c. ft.	10,66,455	

	Up.	Down.	Total.
. Total number of boats plying cargo No.	895	299	1,194
. Total number of boats plying passenger No.	538	605	1,143
½. Ditto empty „	439	649	1,088
. Total registered tonnage, cargo Tons	11,518	4,567	16,085
. Total registered tonnage, passenger Tons	3,812	3,730	7,542
½. Ditto empty „	1,898	3,138	5,036
. Ton-mileage ..	358,930	207,163	566,093
. Estimated value of cargo Rs.	4,56,942	6,35,630	10,92,572
. Number of passengers ...	4,957	10,478	15,435
. Rafts, bamboos C. ft.	1,798	100	1,898
2. Do., bullahs „	19,520	40	19,560
3. Estimated value of rafts Rs.	10,738	112	10,850
4. Tollage on boats „	5,948-5-3	3,084-3-0	9,032-8-3
5. Compounded tollage on boats Rs.	.....	.....	.....
6. Tollage on rafts „	323	1	324
7. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-3
8. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	1-8-2

	Rs.	A.	P.
Total tollage of month—24+25+26 ...	9,356	8	3
Total tollage of same month last year ...	10,992	15	9

Memorandum of Tollage.

	Rs.	A.	P.
1. Balance not recovered on the 1st of the month	2,907	14	1
2. Tollage per month ...	9,356	8	3
3. Total ...	12,264	6	4
4. Amount paid into Treasury during the month ...	6,953	10	6
5. Balance due at the end of the month ...	5,310	11	10

HIDGELLEE TIDAL CANAL.

LENGTH OF CANAL OPEN, 29 MILES.

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE.				PRIVATE.		REMARKS.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
107	1. Grain ...	618	390	1,008	1,08,979	1,008	1,08,979	
...	2. Cotton ...	.....	.....	.....	.....	.....	...	
5	3. Oilseeds ...	7	7	14	1,100	14	1,100	
22	4. Salt ...	.....	156	156	17,540	156	17,540	
4	5. Piece-goods ...	.....	7	7	9,600	7	9,600	
1	6. Metal ...	.....	3	3	200	3	200	
9	7. Building materials	11	37	48	392	48	392	
599	8. Miscellaneous ...	628	260	888	82,621	888	82,621	
9	9. Fuel ...	3	74	77	960	44	530	
27 rafts	10. Timber ...	592 c. ft.	3,469 c. ft.	4,061 c ft.	4,130	4,061 c. ft	4,130	
...	11. Bamboos ...	.....	.....	.....	.....	.....	... ..	
6 & afts.	12. Total ..	1,267 & 592 c. ft.	934 & 3,469 c. ft.	2,201 & 4,061 c. ft.	2,25,522	2,168 & 4,061 c. ft	2,25,092	
07 & afts.	13. Total of same month last year.	2,431 & 977 c. ft.	488 & 11,932 c. ft	2,919 & 12,909 c. ft.	1,90,994	2,919 & 12,909 c. ft.	1,90,994	

	Up.	Down.	Total.
Total number of boats plying cargo No.	341	415	756
Total number of boats plying passenger No.	57	59	116
Total registered tonnage, cargo Tons	3,125	3,074	6,199
Total registered tonnage, passenger Tons	436	551	987
Ton-mileage	58,218	65,642	123,860
Estimated value of cargo Rs.	86,259	135.133	2,21,392
Number of passengers ...	896	1,527	2,423
Rafts, bamboos C. ft.	.....	.....	.....
Do., bullahs „	592	3,469	4,061
Estimated value of rafts Rs.	610	3,520	4,130
Tollage on boats „	1,018-11-3	1,147-6-9	2,166-2-0
Compounded tollage on boats Rs.	.....	0-5-6	0-5-6
Tollage on rafts „	9-5-3	82-5-0	91-10-3
Total tollage on boats per ton-mile Rs.	.....	.....	0-0-3·3
Total tollage on rafts per 100 cubic feet Rs.	.....	.....	2-4-1

	Rs.	A.	P.
Total tollage of month—24 + 25 + 26 ...	2,258	1	9
Total tollage of same month last year	2,529	2	3

Memorandum of Tollage.

	Rs.	A.	P.
1. Balance not recovered on the 1st of the month ...	1,743	4	9
2. Tollage per month ...	2,258	1	9
3. Total ...	4,001	6	6
4. Amount paid into Treasury during the month ...	2,364	9	9
5. Balance due at the end of the month	1,636	12	9

SONE CIRCLE.

PATNA CANAL SYSTEM.

LENGTH OF CANAL OPEN, 86¼ MILES.

Number of boats or rafts.	Description.	Total Government and Private. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	Private. Quantity. Tons.	Value. Rupees.	Remarks.
7	1. Grain ..	1	79	80	4,812	80	4,812	
...	2. Cotton ...	.....	.....	.....	.....	.....	.....	
1	3. Oilseeds ...	.....	17	17	1,812	17	1,812	
4	4. Salt ...	71	.....	71	5,666	71	5,666	
28	5. Piece-goods ...	192	11	203	36,324	203	36,324	
3	6. Metal ...	33	.....	33	2,456	33	2,456	
10	7. Building materials	7	67	74	440	45	200	
42	8. Miscellaneous ...	99	253	352	59,346	260	58,992	
...	9. Fuel .	.....	.....	.....	.....	.....	.....	
...	Do. ...	.....	33	33	295	33	295	
6	10. Timber ...	99	.....	99	3,520	.....	.....	
...	Do. ...	.....	52	52	553	52	553	
..	11. Bamboos ...	.....	84	84	1,294	84	1,294	
101	12. Total ...	502	596	1,098	1,16,518	878	1,12,404	
176	13. Total of same month last year ...	474	1,312	1,786	1,85,469	1,403	1,84,333	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	54	47	101
15. Total number of boats plying passenger No.	9	15	24
15½. Ditto empty „	46	38	84
16. Total registered tonnage, cargo Tons	838	664	1,502
17. Total registered tonnage, passenger Tons	140	189	329
17½. Ditto empty „	217	166	383
18. Ton-mileage ...	68,310	61,990	130,300
19. Estimated value of cargo Rs.	55,738	58,638	1,14,376
20. Number of passengers ...	386½	599	985½
21. Rafts, bamboos C. ft.	.....	12,610	12,610
22. Do., bullahs „	.....	6,372	6,372
23. Estimated value of rafts Rs.	.....	2,142	2,142
24. Tollage on boats „	564-0-9	333-6-6	897-7-3
25. Compounded tollage on boats Rs.	75-0-0	75-0-0	150-0-0
26. Tollage on rafts „	.....	83-14-3	83-14-3
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-1·56
28. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	0-7-0

	Rs.	A.
Total tollage of month—24 + 25 + 26 ...	1,131	5
Total tollage of same month last year ...	1,760	2

Memorandum of Tollage.

	Rs.	A.
1. Balance not recovered on the 1st of the month ...	135	11
2. Tollage per month ...	1,131	5
3. Total ...	1,267	1
4. Amount credited in the accounts of the month	949	4
5. Balance due at the end of the month ...	317	13

ARRAH CANAL SYSTEM.

LENGTH OF CANAL OPEN, 65 MILES.

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE.				PRIVATE.		REMARKS.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
11	1. Grain ...	... ..	149	149	11,789	149	11,789	
...	2. Cotton ...	... ..	.....	.....	.....	.. ...	.....	
...	3. Oilseeds ...	1	1	2	492	2	492	
27	4. Salt ...	377	.. ...	377	44,886	377	44,886	
...	5. Piece-goods .	24	4	28	39,650	28	39,650	
1	6. Metal ..	5	.....	5	20,640	5	20,640	
7	7. Building materials	.....	84	84	348	77	328	
119	8. Miscellaneous ...	22	889	911	36,787	153	35,560	
8	9. Fuel ...	57	54	111	1,300	54	750	
...	10. Timber ...	2	2	4	435	4	435	
...	Do. ..	... ..	2	2	415	2	415	
...	11. Bamboos ..	.....	23	23	377	23	377	
...	Bullahs ..	.....	8	8	125	8	125	
...	Firewood ...	.....	680	680	4 918	680	4,918	
173	12. Total ...	488	1,896	2,384	1,61,962	1,562	1,60,365	
148	13. Total of same month last year.	590	1,373	1,963	1,92,312	1,547	1,87,489	

	Up.	Down.	Total.
4. Total number of boats plying cargo No.	36	137	173
5. Total number of boats plying passenger No.	...	2	2
5½. Total number of empty boats No.	87	7	94
6. Total registered tonnage, cargo Tons	830	2,134	2,964
7. Total registered tonnage, passengers Tons	65	67	132
7½. Total registered tonnage, empty Tons	400	26	426
8. Ton-mileage ...	49,226	79,516	128,742
9 Estimated value of cargo Rs.	1,01,355	54,772	156,127
10. Number of passengers ...	911	856	1,767
11. Rafts, bamboos C.ft.	.....	3,510	3,510
11½. Do, timber „	.....	164	164
12. Do., bullahs „	.....	650	650
12½. Do., firewood „	.....	51,015	51,015
13. Estimated value of rafts Rs.	.....	5,835	5,835
14. Tollage on boats „	273-12-9	370-12-3	644-9-0
15. Compounded tollage on boats Rs.	228-0-0	228-0-0	456-0-0
16. Tollage on rafts „	.....	85-4-6	85-4-6
17. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-1·64
18. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	0-2-5

	Rs. A. P.
Total tollage of month—24 + 25 + 26 ...	1,185 13 6
Total tollage of same month last year ...	1,502 4 11

Memorandum of Tollage.

	Rs. A. P.
1. Balance not recovered on the 1st of the month	296 10 9
2. Tollage per month ...	1,185 13 6
3. Total ...	1,482 8 3
4. Amount credited in the accounts of the month	1,246 3 6
5. Balance due at the end of the month ...	236 4 9

BUXAR CANAL SYSTEM.

LENGTH OF CANAL OPEN, 67 MILES

Number of boats or rafts.	DESCRIPTION.	TOTAL GOVERNMENT AND PRIVATE.				PRIVATE.		REMARKS.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
12	1. Grain ...	66	178	244	15,168	244	15,168	
...	2. Cotton ...	2	1	3	4,350	3	4,350	
1	3. Oilseeds ...	.....	6	6	400	6	400	
...	4. Salt ...	1	.....	1	340	1	340	
...	5. Piece-goods ...	1	1	2	2,900	2	2,900	
...	6. Metals ...	3	1	4	10,310	4	10,310	
1	7. Building materials	1	7	8	274	8	274	
22	8. Miscellaneous ...	9	191	200	13,968	200	13,968	
...	9. Fuel ...	.....	.....	.....	.....	.....	.....	
...	10. Timber ...	...	94	94	1,102	94	1,102	
...	11. Bamboos ...	... ..	299	299	7,077	299	7,077	
36	12. Total ..	83	778	86	55,889	861	55,889	
54	13. Total of same month last year.	39	847	886	1,08,234	879	1,07,984	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	3	33	36
15. Total number of boats plying passenger No.	7	9	16
15½. Ditto empty „	25	4	29
16. Total registered tonnage, cargo Tons	104	896	1,000
17. Total registered tonnage, passenger Tons	189	206	395
17½. Ditto empty „	115	10	125
18. Ton-mileage ...	9,828	9,244	19,072
19 Estimated value of cargo Rs.	19,225	28,485	47,710
20. Number of passengers ...	460	670	1,130
21. Rafts, bamboos C. ft.	.....	44,887	44,887
22. Do., bullahs „	.....	7,049	7,049
23. Estimated value of rafts Rs.	.....	8,179	8,179
24. Tollage on boats „	82-0-3	135 8-6	217-8 9
25. Compounded tollage on boats Rs	107-0-0	107-0-0	214-0-0
26. Tollage on rafts „	.....	204-11-3	204-11-3
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-4·34
28. Total tollage on rafts per 100 cubic feet Rs.	.....	.....	0-6-3

	Rs.	A.
Total tollage of month—24 + 25 + 26 ..	636	4
Total tollage of same month last year ...	601	13

Memorandum of Tollage.

	Rs.	A.
1. Balance not recovered on the 1st of the month ...	21	9
2. Tollage per month ...	636	4
3. Total ...	657	13
4. Amount credited in the accounts of the month ...	656	1
5. Balance due at the end of the month ...	1	11

ABSTRACT, FOR THE MONTH OF NOVEMBER 1889 AS COMPARED WITH THE CORRESPONDING MONTH OF THE PREVIOUS YEAR.

Canal.	Traffic, 1889-90.		Traffic, 1888-89.		Remarks.
	During the month.	To end of the month.	During the month.	To end of the month.	
Orissa Circle.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Taldunda Canal System ...	55 12 6	2,690 14 7	133 14 0	1,408 0 9	
Kendrapara Canal System	4,784 5 3	30,500 13 7	4,657 12 8	29,426 3 1	
High Level, Range I ...	557 15 4	4,525 0 7	451 1 9	3,824 15 6	
Ditto, „ II ...	226 5 9	1,928 7 3	140 12 3	1,605 1 6	
Ditto, „ III ...	109 0 9	922 9 3	49 8 6	765 3 6	
Jajepore Canal ...	15 14 0	66 3 8	9 1 4	48 6 10	
Total Orissa Circle ...	5,749 5 7	40,634 0 11	5,442 2 6	37,077 15 2	
South-Western Circle.					
Midnapore Canal ..	9,356 8 3	95,279 12 6	10,992 15 9	88,077 7 6	
Hidgellee Tidal Canal ...	2,258 1 9	33,420 11 6	2,529 2 3	42,330 1 6	
Total South-Western Circle	11,614 10 0	1,28,700 8 0	13,522 2 0	1,30,407 9 0	
Sone Circle.					
Patna Canal System ..	1,131 5 6	16,732 15 0	1,760 2 6	18,049 1 6	
Arrah ditto ...	1,185 13 6	12,452 15 2	1,502 4 11	13,676 15 5	
Buxar ditto ...	636 4 0	4,734 0 5	601 13 6	6,256 15 6	
Total Sone Circle ...	2,953 7 0	33,919 14 7	3,864 4 11	37,983 0 5	
Grand Total ...	20,317 6 7	2,03,254 7 6	22,828 9 5	2,05,468 8 7	

GOVERNMENT TRANSPORT SERVICE.

Canal.	Traffic, 1889-90.						Traffic, 1888-89.					
	During the month.			To end of the month.			During the month.			To end of the month.		
	Passengers.	Goods.	Total receipts.	Passengers.	Goods.	Total receipts.	Passengers.	Goods.	Total receipts.	Passengers.	Goods.	Total receipts.
Orissa Circle.	No.	Mds.	Rs. A. P.	No.	Mds.	Rs. A. P.	No.	Mds.	Rs. A. P.	No.	Mds.	Rs. A. P.
High Level	700	538	1,940 12 4	4,621	4,806	6,105 10 3	733	694	873 0 10	3,194	1,963	3,601 12 4
Total Orissa Circle ...	700	538	1,940 12 4	4,621	4,806	6,105 10 3	733	694	873 0 10	3,194	1,963	3,601 12 4

TOTAL NAVIGATION RECEIPTS.

Canal.	Earnings, 1889-90.		Earnings, 1888-89.		Remarks.
	During the month.	To end of the month.	During the month.	To end of the month.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Orissa Canals ...	7,690 1 11	46,739 10 14	6,315 3 4	40,679 11 6	
Midnapore Canal ...	9,356 8 3	95,279 12 6	10,992 15 9	88,077 7 6	
Hidgellee Tidal Canal ...	2,258 1 9	33,420 11 6	2,529 2 3	42,330 1 6	
Sone Canals ...	2,953 7 0	33,919 14 7	3,864 4 11	37,983 0 5	
Total ...	22,258 2 11	2,09,360 1 9	23,701 10 3	2,09,070 4 11	

Calcutta,
The 18th February 1890.

G. A. G. Shawe,
Under-Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT, IRRIGATION BRANCH, BENGAL.

SOUTH-WESTERN CIRCLE.

NUDDEA RIVERS.

Statement showing quantities of Goods carried during the month of December 1889.

Number of boats or rafts.	Description.	Total Government and Private. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	Private. Quantity. Tons.	Value. Rupees.	Remarks.
486	1. Grain ...	833·50	3,417·00	4,250·50	2,67,739	4,250·50	2,67,739	
...	2. Cotton ...	.....	.....	.....	.....	.....	.....	
66	3. Oilseeds ...	5 00	844·50	849·50	94,900	849·50	94,900	
318	4. Salt ...	2,921 00	.....	2,921·00	2,49,056	2,921·00	2,49,056	
...	5. Piece-goods ...	.....	.....	.....	.....	.....	.....	
19	6. Metal	119·75	21·00	140·75	71,575	140·75	71,575	
21	7. Building materials	6·00	39·00	107·00	1,069	107 00	1,069	
1,050	8. Miscellaneous ...	2,326·37	7 978·63	10 305·00	17,37,375	10,305·00	17,37,375	
74	9. Fuel ...	833·00	133·37	966·37	12,633	966·37	12,633	
33 rafts	10. Timber ...	445 c.ft.	10,845 c. ft.	11,290 c. ft.	32,962	11,290·00 c.ft.	32,962	
2 „	11. Bamboos ...	10 „	2·0 „	210 „	17	210·00 „	17	
2,034 & 35 rafts.	12. Total ...	7,106·62 & 455 c. ft	12,433·50 & 11,945 c. ft.	19,540·12 & 11,500 c. ft.	24,67,326	19,540·12 & 11,500 c.ft	24,67,326	25 maunds passed up on Matabhanga river.
2,113 & 43 rafts.	13. Total of same month last year	7,448 & 432 c. ft.	13,138 & 9,141 c. ft.	20,586 & 9,573 c. ft.	30,42,721	20,586 & 9,573 c. ft.	30,42,721	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	906	1,128	2,034
14*a*. Ditto empty boats, steamers &c. No.	355	190	545
15. Total number of boats plying passenger No.	488	750	1,238
15*a*. Ditto empty boats „	32	28	60
16. Total registered tonnage, cargo Tons	17,636	26,440	44,076
17. Total registered tonnage, passenger Tons	241	371	612
18. Ton-mileage	.....	.....	.....
19. Estimated value of cargo Rs	8,39,783	15,94 582	24,34,347
20. Number of passengers No.	1,153	1,435	2,588
21. Rafts, bamboos C. ft.	10	200	210
22. Do., bullahs „	445	10,845	11,290
23. Estimated value of rafts Rs.	758	32,221	32,979
24 Tollage on boats „	4,258-10-0	6,849-2-6	11,107-12-6
25. Compounded tollage on boats Rs.	.....	.....	.....
26. Tollage on rafts „	3-9-0	200-2-6	203-11-6
27. Total tollage on boats per ton mile* ...	.....	.....	.....
28. Ditto on rafts per 100 cubic feet ... Rs.	.....	.....	1-12-4

	Rs. A. P.
Total tollage of month—24+25+26 ...	11,311 8 0
Total tollage of same month last year ...	11,481 7 0

Memorandum of Tollage.

	Rs. A. P.
1. Balance not recovered on the 1st of the month ...	368 15 0
2. Tollage per month ...	11,311 8 0
3. Total ...	11,680 7 0
4. Amount paid into Treasury during the month ...	11,223 5 6
5. Balance due at the end of the month ...	457 1 6

* Boats in these rivers do not pay per mile.

Abstract for the month of December 1889 *as compared with the corresponding month of the previous year.*

	1889-90. During the month.	1889-90. To end of the month.	1888-89. During the month.	1888-89. To end of the month.
	Rs. A. P.	Rs. A P.	Rs. A. P.	Rs. A. P.
Tollage	11,311 8 0	1,57,412 11 9	11,481 7 0	1,65,633 12 2

CALCUTTA,
The 18*th February* 1890.

G. A. G. SHAWE,
Under-Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT, IRRIGATION BRANCH, BENGAL.

SOUTH-WESTERN CIRCLE.

ORISSA COAST CANAL SYSTEM.

LENGTH OF CANAL OPEN, 97½ MILES.

Statement showing quantities of Goods carried during the month of December 1889.

Number of boats or rafts.	Description.	Total Government and Private. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	Private. Quantity. Tons.	Value. Rupees.	Remarks.
156	1. Grain ...	1,190	440	1,630	64,422	1,630	64,422	
...	2. Cotton ...	.....	.....	.....	.....	.....	.....	
8	3. Oilseeds ...	55	.....	55	4,940	55	4,940	
23	4. Salt ...	.....	209	209	24,525	209	24,525	
6	5. Piece-goods ...	.....	36	36	6,300	36	6,300	
2	6. Metal ...	1	.....	1	115	.....	.....	
8	7. Building materials	16	5	21	163	15	143	
634	8. Miscellaneous	658	511	1,169	1,29,151	1,168	1,29,056	
16	9. Fuel ...	20	91	111	858	93	733	
9 rafts.	10. Timber ...	1,118 c. ft.	.....	1,118 c. ft.	1,094	1,118 c. ft.	1,094	
2 „	11. Bamboos ...	.....	250 c. ft.	250 „	24	250 „	24	
853 11 rafts	12. Total ...	1,940 & 1,118 c. ft.	1,292 & 250 c. ft	3,232 & 1,368 c. ft.	2,31,592	3,206 & 1,368 c.ft.	2,31,237	
1,043 7	13. Total of same month last year	2,014 & 303 c. ft.	575 & 43 c. ft.	2,589 & 346 c. ft.	1,61,741	2,589 & 346 c.ft.	1,61,741	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	452	401	853
15. Total number of boats plying passenger No.	71	68	139
16. Total registered tonnage, cargo Tons	4,322	3,660	7,982
17. Total registered tonnage, passenger Tons	816	788	1,604
18. Ton-mileage ...	152,315	151,863	3,04,178
19. Estimated value of cargo Rs.	98,773	1,31,701	2,30,474
20. Number of passengers No.	1,579	2,024	3,603
21. Rafts, bamboos C. ft.	.....	250	250
22. Do., bullahs „	1,118	.....	1,118
23. Estimated value of rafts Rs.	1,094	24	1,118
24. Tollage on boats „	2,690-1-3	2,672-15-3	5,363-0-6
25. Compounded tollage on boats Rs.	3-2-0	3-12-0	6-14-0
26. Tollage on rafts „	32-12-0	1-14-0	34-10-0
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-3·3
28. Ditto. on rafts per 100 cubic feet Rs.	.....	.....	2-8-5

	Rs. A. P.
Total tollage of month—24+25+26 ...	5,404 8 6
Total tollage of same month last year ...	3,876 8 0

Memorandum of Tollage.

	Rs. A. P.
1. Balance not recovered on the 1st of the month	4,402 10 0
2. Tollage per month ...	5,404 8 6
3. Total ...	9,807 2 6
4. Amount paid into Treasury during the month ...	3,295 9 3
5. Balance due at the end of the month ...	6,511 9 3

Abstract for the month of December 1889 *as compared with the corresponding month of the previous year.*

	1889-90. During the month.	1889-90. To end of the month.	1888-89. During the month.	1888-89. To end of the month.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Tollage	5,404 8 6	43,233 9 0	3,876 8 0	46,019 12 0

CALCUTTA,
The 18th February 1890.

G. A. G. SHAWE,
Under-Secy. to the Govt. of Bengal.

PUBLIC WORKS DEPARTMENT, IRRIGATION BRANCH, BENGAL.

SOUTH-WESTERN CIRCLE.

CALCUTTA AND EASTERN CANALS.

Statement showing quantities of Goods carried during the month of December 1889.

Number of boats or rafts.	Description.	Total Government and Private.				Private.		Remarks.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
473	1. Grain ...	6,366	.....	6,366	6,21,880	6,366	6,21,880	
1	2. Cotton ...	1	.....	1	450	1	450	
20	3. Oilseeds ..	330	3	333	37,537	333	37,537	
360	4. Salt ...	436	6,293	6,729	6,35,850	6,729	6,35,850	
.....	5. Piece-goods ...	.....	.....	.....	.....	.....	.....	
10	6. Metal ...	10	50	60	13,850	60	13,850	
171	7. Building materials	5,600	91	5,691	88,187	5,691	88,187	
3,690	8. Miscellaneous*...	39,010	2,204	41,214	52,45,120	41,214	52,45,120	
512	9. Fuel ...	9,456	3,910	13,366	1,02,774	13,366	1,02,774	
... ..	10. Timber ...	.....	.....	.. ...	.....	.....	.....	
2 rafts	11. Bamboos ...	64 c. ft.	.....	64 c. ft.	10	64 c. ft.	10	
5,237 & 2 rafts.	12. Total ...	61,209 & 64 c. ft.	12,551	73,760 & 64 c. ft.	67,45,658	73,760 & 64 c. ft.	67,45,658	* For details, see next page.
5,876 & 1 raft.	13. Total of same month last year.	61,033	12,976 & 40 c. ft	74,009 & 40 c. ft.	62,41,524	74,009 & 40 c. ft.	62,41,524	

	Up.	Down.	Total.
14. Total number of boats plying cargo No.	4,614	623	5,237
14a. Ditto empty boats „	2,054	1,336	3,390
15. Total number of boats plying passenger No.	367	8	375
16. Total registered tonnage, cargo Tons	149,965	38,700	188,665
17. Total registered tonnage, passenger Tons	669	31	700
18. Ton-mileage ...	1,391,880	387,000	1,778,880
19. Estimated value of cargo Rs.	58,18,485	9,27,163	67,45,648
20. Number of passengers No.	1,273	39	1,312
21. Rafts, bamboos C. ft.	64	.....	64
22. Do., bullahs „	.....	.....	.....
23. Estimated value of rafts Rs.	10	... ..	10
24. Tollage on boats „	34,641-12-3	9,489-9-0	44,131-5-3
25. Compounded tollage on boats Rs.	.....	.....	.....
26. Tollage on rafts „	0-8-0	.....	0-8-0
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-4·76
28. Ditto on rafts per 100 cubic feet Rs.	.....	.....	0-12-6

	Rs.	A.	P.
Total tollage of month—24+25+26 ...	44,131	13	3
Total tollage of same month last year ...	45,276	6	0

Memorandum of Tollage.

	Rs.	A.	P.
1. Balance not recovered on the 1st of the month ...	1,295	11	9
2. Tollage per month ...	44,131	13	3
3. Total	45,427	9	0
4. Amount paid into Treasury during the month ...	44,299	1	3
5. Balance due at the end of the month ...	1,128	7	9

ARTICLES OF TRAFFIC INCLUDED IN ITEM 8 (MISCELLANEOUS).

CALCUTTA AND EASTERN CANALS.

Number of Boats or rafts.	Description.	Total Government and Private.				Private.		Remarks.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
1,558	(a) Jute ...	33,332	77	33,409	42,09,525	33,409	42,09,525	
76	(b) Jaggery ...	548	41	589	57,750	589	57,750	
3	(c) Sugar ...	36	.....	36	9,000	36	9,000	
2	(d) Tobacco ...	.....	8	8	1,575	8	1,575	
1,230	(e) Fish ...	185	2	187	52,361	187	52,361	
22	(f) Hides ...	28	.....	28	6,388	28	6,388	
50	(g) Poultry ...	5	.....	5	4,392	5	4,392	
87	(h) Hay and straw ...	487	.....	487	11,935	487	11,935	
111	(j) Oil ...	.....	1,769	1,769	2,47,625	1,769	2,47,625	
41	(k) Earthenware ...	90	7	97	1,359	97	1,359	
510	(m) Other miscellaneous ...	4,299	300	4,599	6,43,210	4,599	6,43,210	
3,690	Total Miscellaneous...	39,010	2,204	41,214	52,45,120	41,214	52,45,120	

PUBLIC WORKS DEPARTMENT, IRRIGATION BRANCH, BENGAL.

SOUTH-WESTERN CIRCLE.

TOLLY'S NULLAH.

Statement showing quantities of Goods carried during the month of December 1889.

Number of boats or rafts.	Description.	Total Government and Private.				Private.		Remarks.
		Quantity—Tons.			Value.	Quantity.	Value.	
		Up.	Down.	Total.	Rupees.	Tons.	Rupees.	
5,709	1. Grain ...	11,687	.....	11,687	10,82,967	11,687	10,82,967	
15	2. Cotton ...	117	.....	117	58,950	117	58,950	
11	3. Oilseeds ...	163	.....	163	18,650	163	18,650	
65	4. Salt ...	541	353	894	84,459	894	84,459	
.....	5. Piece-goods ...	.....	.....	.....	.....	.....	.....	
.....	6. Metal ...	.....	.....	.....	.....	.....	.....	
291	7. Building materials	2,846	.....	2,846	14,359	2,846	14,359	
985	8. Miscellaneous* ...	5,923	97	6,020	5,15,068	6,020	5,15,068	
160	9. Fuel ...	1,943	18	1,961	15,524	1,961	15,524	
2 rafts	10. Timber ...	7,732 c. ft.	.....	7,732 c. ft.	19,330	7,732 c. ft.	19,330	
3 „	11. Bamboos ...	213 „	.....	213 „	35	213 „	35	
7,236 & 5 rafts.	12. Total ...	23,220 & 7,945 c. ft	468	23,688 & 7,945 c. ft.	18,09,342	23,688 & 7,945 c. ft.	18,09,342	
5,788 & 3 rafts.	13. Total of same month last year ...	19,296 & 2,150 c. ft.	563	19,859 & 2,150 c. ft.	14,52,588	19,859 & 2,150 c. ft.	14,52,588	

* For details, see next page.

	Up.	Down.	Total.
14. Total number of boats plying cargo ... No.	7,162	74	7,236
14*a*. Ditto empty boats „	1,125	289	1,414
15. Total number of boats plying passenger ... No.	398	6	404
16. Total registered tonnage, cargo ... Tons	64,306	3,633	67,939
17. Total registered tonnage, passenger ... Tons	850	15	865
18. Ton-mileage	596,365	58,128	654,493
19. Estimated value of cargo Rs.	17,43,629	46,348	17,89,977
20. Number of passengers No.	2,411	17	2,428
21. Rafts, bamboos C. ft.	213	.....	213
22. Do., bullahs „	7,732	.....	7,732
23. Estimated value of rafts Rs.	19,365	.....	19,365
24. Tollage on boats „	10,384-15-9	876-12-6	11,261-12-3
25. Compounded tollage on boats ... Rs.	.....	.....	.....
26. Tollage on rafts „	38-4-0	.....	38-4-0
27. Total tollage on boats per ton-mile Rs.	.....	.....	0-0-3·30
28. Ditto on rafts per 100 cubic feet ... Rs.	.....	.....	0-7-8

	Rs.	A.
Total tollage of month—24+25+26 ...	11,300	0
Total tollage of same month last year ..	11,477	9

Memorandum of Tollage.

	Rs.	A.
1. Balance not recovered on the 1st of the month ...	233	11
2. Tollage per month ...	11,300	0
3. Total	11,533	11
4. Amount paid into Treasury during the month ...	11,140	13
5. Balance due at the end of the month ...	392	13

ARTICLES OF TRAFFIC INCLUDED IN ITEM 8 (MISCELLANEOUS).
TOLLY'S NULLAH.

Number of boats or rafts.	Description.	Total Government and Private. Quantity—Tons. Up.	Down.	Total.	Value. Rupees.	Private. Quantity. Tons.	Value Rupees.	Remarks.
24	(*a*) Jute ...	186	12	198	24,975	198	24,975	
99	(*b*) Jaggery ...	618	.....	618	60,602	618	60,602	
1	(*c*) Sugar ...	.....	1	1	180	1	180	
18	(*d*) Tobacco ...	152	20	172	33,600	172	33,600	
211	(*e*) Fish ...	16	1	17	4,649	17	4,649	
1	(*f*) Hides ...	4	.....	4	1,000	4	1,000	
4	(*g*) Poultry ...	1	.....	1	368	1	368	
266	(*h*) Hay and straw...	3,071	.....	3,071	13,086	3,071	13,086	
47	(*j*) Oil ...	459	5	464	65,000	464	65,000	
102	(*k*) Earthenware ...	97	3	100	1,398	100	1,398	
212	(*m*) Other miscellaneous.	1,319	55	1,374	3,10,210	1,374	3,10,210	
985	Total Miscellaneous...	5,923	97	6,020	5,15,068	6,020	5,15,068	

ABSTRACT FOR THE MONTH OF DECEMBER 1889, AS COMPARED WITH THE CORRESPONDING MONTH OF THE PREVIOUS YEAR.

	Traffic, 1889-90. During the month.	To end of the month.	Traffic, 1888-89. During the month.	To end of the month.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Calcutta and Eastern Canals ...	44,131 13 3	2,35,334 1 6	45,276 6 0	2,80,654 3 6
Tolly's Nullah	11,300 0 3	67,373 4 9	11,477 9 6	92,840 3 6
Total ...	55,431 13 6	3,02,707 6 3	56,753 15 6	3,73,494 7 0

Calcutta,
The 18th February 1890.

G. A. G. Shawe,
Under-Secretary to the Govt. of Bengal.

CIRCULAR AND EASTERN CANALS.

Approximate Return of Traffic for the week ending Saturday, the 15th February 1890, *as compared with the corresponding week of the previous year.*

Nature of Cargo.	Week ending Saturday, the 15th February 1890. Number of boats.	Weight of cargo.	Tollage.	Week ending Saturday, the 16th February 1889. Number of boats.	Weight of cargo.	Tollage.
	No.	Mds.	Rs.	No.	Mds.	Rs.
Rice and paddy	1,850	3,71,195	6,429	1,556	4,39,270	7,869
Jute	199	1,33,325	2,401	133	93,725	1,738
Firewood	153	1,04,250	1,468	194	1,26,125	1,851
Other articles	1,038	2,47,710	3,669	1,115	2,30,470	3,653
Total ...	3,240	8,56,480	13,957	2,998	8,88,590	15,111

EAST INDIAN RAILWAY.

Statement of Goods Traffic in Staples carried during the five weeks and three days ending 31st December 1889, as compared with the same period of 1888.

Staples.	1889.		1888.		Increase.		Decrease.	
	Weight.	Freight.	Weight.	Freight.	Weight.	Freight.	Weight.	Freight.
	Mds.	Rs.	Mds.	Rs.	Mds.	Rs.	Mds.	Rs.
Animals, living — Horses, ponies, and mules	No. 213	8,714	No. 872	18,592	No.	.....	No. 659	9,878
Animals, living — Cattle	,, 366	1,764	,, 352	3,042	,, 14	.....	,, ...	1,278
Animals, living — Sheep and goats	,, 6,648	5,304	,, 4,207	2,976	,, 2,341	2,328	,, ...	.....
Animals, living — Other kinds	,, ...	.....	,, ...	.....	,, ...	.....	,, ...	.....
Borax	1,680	1,030	620	248	1,060	782	.....	.....
Canes and rattans	.....	.....	.....	.....	.....	.....	.....	.....
Caoutchouc (Indian-rubber)	11	10	9	17	2	.....	.....	7
Chinese and Japanese wares	22	14	46	60	.....	.....	24	46
Coal and coke, up	7,82,277	1,03,726	9,84,837	3,30,666	.....	.....	2,02,560	1,26,940
Coal and coke, Ditto, down	29,84,961	3,97,539	35,72,461	4,91,369	.....	.....	5,87,500	93,830
Cotton, raw	3,98,077	2,26,535	2,04,689	2,21,063	1,54,288	5,472	.....	.....
Cotton, manufactured — Twist and yarn (European)	11,134	13,309	11,036	13,423	98	.....	.....	114
Cotton, manufactured — Ditto (Indian)	17,328	11,549	20,499	13,779	.....	.....	3,171	2,230
Cotton, manufactured — Piece-goods (European)	1,02,448	1,73,378	1,89,325	2,10,858	.....	.....	26,877	37,480
Cotton, manufactured — Ditto (Indian)	34,119	19,105	33,968	20,466	151	.....	.....	1,361
Drugs and medicines — Asafœtida	316	196	1,389	963	.....	.....	1,073	767
Drugs and medicines — Other sorts, not intoxicating	2,185	2,925	2,838	3,146	.....	.....	653	223
Drugs and medicines — Intoxicating drugs (other than opium, i.e., arsenic, bhang, ganja, and charas, &c.)	932	682	771	833	161	.....	.....	151
Dyeing materials — Indigo	88,355	1,05,019	1,08,706	1,35,508	.....	.....	20,351	30,489
Dyeing materials — Madder or manjit	3	1	24	4	.....	.....	21	3
Dyeing materials — Safflower	87	151	87	121	.....	30	.....	.....
Dyeing materials — Turmeric	11,410	6,529	10,031	5,649	1,379	880	.....	.....
Dyeing materials — Other kinds	8,009	5,340	12,509	7,839	.....	.....	4,500	2,490
Earthenware and porcelain	985	1,938	1,075	2,088	.....	.....	90	150
Fibrous products — Jute, raw	88,183	17,044	1,46,682	28,996	.....	.....	58,499	11,952
Fibrous products — Do., manufactured (gunny bags and cloths).	1,01,347	55,990	85,351	45,410	15,996	10,580	.....	.....
Fibrous products — Other fibres, raw	43,051	13,596	41,758	9,992	1,293	3,604	.....	.....
Fibrous products — Ditto, manufactured	2,851	1,249	3,481	1,520	.....	.....	630	271
Fruits & Nuts — Cocoanuts	9,213	4,512	8,842	4,324	371	188	.....	.....
Fruits & Nuts — All other kinds	71,147	52,921	64,343	54,679	6,794	.....	.....	1,758
Grain & Pulses — Wheat	3,15,870	1,07,457	2,72,790	62,657	43,080	44,780	.....	.....
Grain & Pulses — Gram and pulses	4,54,720	1,20,785	2,50,950	65,295	2,03,770	55,490	.....	.....
Grain & Pulses — Rice, husked	10,62,656	1,68,608	10,00,026	2,20,328	62,610	.....	.....	51,720
Grain & Pulses — Do., unhusked	6,175	2,402	36,755	4,702	.....	.....	30,580	2,300
Grain & Pulses — Other rain and spring crops	1,97,424	34,642	1,27,494	18,332	69,930	16,310	.....	.....
Gums and resins	5,806	4,675	6,514	3,685	.....	990	708	.....
Hides & Skins — Hides of cattle	67,828	36,443	94,403	56,173	.....	.....	26,575	19,730
Hides & Skins — Skins of sheep, goats, and small animals.	18,424	8,725	19,442	10,378	.....	.....	1,018	1,653
Horns	623	175	902	454	.....	.....	339	279
Lac — Lac, dye	804	242	592	216	262	26	.....	.....
Lac — Do., shell	18,855	12,782	21,472	15,573	.....	.....	2,617	2,791
Lac — Do., stick and other kinds	23,156	7,103	31,274	9,897	.....	.....	8,118	2,794
Leather — Leather, unmanufactured	2,227	4,632	2,502	5,202	.....	.....	275	570
Leather — Ditto, manufactured	3,083	5,004	3,749	6,145	.....	.....	666	1,142
Liquors	20,138	21,820	23,966	20,072	.....	1,757	3,828	.....
Mats	576	349	693	366	.....	.....	117	17
Metals and Manufactures of — Brass and copper	34,426	23,557	23,094	13,127	11,332	10,430	.....	.....
Metals and Manufactures of — Iron	1,56,801	98,729	1,51,824	89,608	4,977	9,121	.....	.....
Metals and Manufactures of — Other metals	8,807	7,707	7,537	6,432	1,270	1,275	.....	.....
Oils	1,46,062	81,341	97,000	51,540	49,062	29,801	.....	.....
Opium	88,528	90,925	68,202	70,775	20,326	20,150	.....	.....
Paints and colours	10,679	2,337	2,779	2,296	8,100	41	.....	.....
Provisions — Ghee	44,568	28,768	40,507	24,909	3,951	3,859	.....	.....
Provisions — Other kinds	8,8.3	9,094	9,491	9,638	.....	.....	638	544
Railway materials, Construction Account	46,342	2,151	1,04,387	5,072	.....	.....	58,045	2,921
Railway materials, Ditto ditto, Foreign	1,14,642	60,216	1,77,455	69,470	.....	.....	62,913	9,254
Salt	6,26,802	1,18,039	6,08,074	1,13,063	18,728	4,976	.....	.....
Saltpetre, &c. — Saltpetre	85,100	35,455	1,00,824	40,200	.....	.....	15,724	4,765
Saltpetre, &c. — Other saline substances	12,387	4,170	14,769	4,312	.....	.....	2,382	142
Seeds — Oil-seeds — Linseed	2,38,771	70,994	5,27,151	1,55,233	.....	.....	2,88,380	84,249
Seeds — Oil-seeds — Mustard and rape	2,47,489	49,776	1,57,740	30,846	1,09,740	18,930	.....	.....
Seeds — Oil-seeds — Til or ginjelly	56,138	11,204	28,048	5 134	27,590	6,070	.....	.....
Seeds — Oil-seeds — Other oilseeds	77,7 0	23,444	96,620	28,764	.....	.....	18,920	5,320
Seeds — Other seeds — Indigo seed	53,075	11,714	28,125	6,294	25,550	5,420	.....	.....
Seeds — Other seeds — Tea seed	60	44	77	47	.....	.....	17	3
Seeds — Other seeds — Other kinds	1,04,507	25,318	59,167	17,568	45,340	7,750	.....	.....
Silk — Silk, raw	2,174	1,285	1,672	983	502	302	.....	.....
Silk — Do., manufactured (European)	.....	.....	.....	.....	.....	.....	.....	.....
Silk — Do., ditto (Indian)	140	34	563	471	.....	.....	423	437
Spices	14,373	10,305	11,928	8,299	2,445	2,006	.....	.....
Stone and marble	2,09,974	24,129	1,32,491	19,954	77,483	4,195	.....	.....
Sugar — Sugar, refined	99,340	16,031	1,25,454	24,207	.....	.....	26,114	8,176
Sugar — Do., unrefined	5,56,603	99,779	3,29,698	66,204	2,26,905	33,515	.....	.....
Tea — Tea, Indian	5,580	4,966	6,742	7,639	.....	.....	1,162	2,673
Tea — Do., Foreign	6	1	.....	.....	6	1	.....	.....
Tobacco	42,962	22,587	39,407	21,283	3,555	1,304	.....	.....
Wood — Timber	65,420	11,694	29,190	5,837	36,230	5,857	.....	.....
Wood — Firewood	42,756	3,378	27,661	2,079	15,095	1,299	.....	.....
Wool — Wool, raw	4,275	4,091	1,643	1,250	2,633	2,841	.....	.....
Wool — Do., manufactured (European).	1,995	2,460	2,063	2,602	.....	.....	68	142
Wool — Wool, manufactured (Indian)	2,842	3,192	3,644	4,372	.....	.....	802	1,182
Wool — Shawls	8	41	10	49	.....	.....	2	8
All other articles of merchandise	3,38,823	1,94,513	4,55,038	1,85,430	.....	9,083	1,16,215	.....
Bones	47,214	12,893	25,777	6,266	21,437	6,627	.....	.....
Potatoes	1,11,260	56,378	90,572	50,322	14,697	6,051	.....	.....
Minerals	1,92,310	31,489	1,24 796	23,630	67,523	7,859	.....	.....
Government stores	32,457	58,378	30,497	50,950	1,960	7,448	.....	.....
Total	1,09,53,123	31,68,580	1,13,18,246	33,53,223	13,07,512	3,49,428	15,72,635	5,34,071

General remarks on the fluctuation of principal staples carried over the East Indian Railway during month ended 31st December 1889.

INCREASES.

Cotton.—The increase under this head was due to increased despatches to Bombay and to Calcutta.

Gunny.—This increase was due to an improved market for gunny for bagging rice and baling cotton, and was principally in despatches from Howrah to Sahebgunge, Cawnpore, and the Great Indian Peninsula and North-Western Railways.

Government stores.—Due to fluctuations in Government requirements; the increased despatches were principally from Howrah and Chitpore.

Minerals.—Principally in kunkur from Rajbandh to Burdwan and other stations, and in lime from Raneegunge to the jetties for the Kidderpore Docks.

Brass and copper.—The increase was chiefly in the unmanufactured articles from Howrah, owing to cheaper prices than in 1888.

Iron.—The increase was principally due to the carriage at a specially reduced rate of a large quantity of old iron rails sold for delivery in Howrah, and also to increased despatches from Howrah to Agra and Allahabad for the new Water Works.

Oil.—This increase was entirely in kerosine oil from Howrah.

Opium.—Due to despatches of opium from the Government factories having been kept back during the previous month owing to unsettled weather.

Ghee.—Principally in despatches from stations in the North-Western Provinces to Howrah

Salt.—The principal fluctuations were in country salt crossing this Railway at Cawnpore, Agra, and Delhi.

Stone.—Principally in short distance despatches from Asansol, Durgapur, Pakur, Bindhachal, Agra.

Sugar and jaggree.—Chiefly in despatches from stations on the Gya line.

Timber.—Principally in sleepers from Howrah to Mokameh.

Bones.—Principally in bones from stations in the North-Western Provinces to Bally for the crushing mills.

Potatoes.—The increase was chiefly in hill potatoes from the Rohilkhund-Kumaon Railway, and in despatches from Dinapore and Digha Ghât.

Wheat.—Due to a slight demand for export to Europe during the early part of the month.

Grain and pulses.—The increase was due to considerable despatches from stations on the loop line and on the Dinapore district; also from the Oudh and Rohilkhund Railway *viâ* Mogul Serai; and from stations between Allahabad and Agra to Howrah and Bombay.

Other rain and spring crops.—Due partly to a good demand in Calcutta supplied from stations on the Dinapore district and the Oudh and Rohilkhund Railway; but the principal increase was in despatches from Cawnpore and Mankar to Agra for local consumption.

DECREASES.

Coal and coke.—There was a decrease both in the upward and downward despatches. In downwards traffic the decrease was principally in coal for export.

Horses.—Due to an exceptional horse traffic having been carried last year.

Piece-goods.—The decrease was principally in despatches from Howrah to Cawnpore, Delhi, and other stations in the North-Western Provinces and the Punjab.

Indigo.—The decline follows a large increase in November 1889.

Jute.—The decrease was principally from the Purneah district *viâ* Sahebgunge owing to poor crops.

Hides.—Supplies are reported to be scarce, and there is little demand from Europe.

Lac.—The traffic in shed and stick lac has shown a decline throughout the half year.

Railway material, Foreign.—Due to limited despatches for the Bengal-Nagpore and Delhi-Umballa-Kalka Railways.

Saltpetre.—The falling off was in despatches from the Tirhoot State Railway.

Seeds.—The decrease was entirely in linseed owing to exhaustion of stocks.

Rice (husked and unhusked).—There was an increase in the weight carried attended with a decrease in the freight earned, and this was due to short lead traffic.

N. ST. L. CARTER, *Traffic Manager.*

TRAFFIC MANAGER'S OFFICE, CALCUTTA, 12*th February* 1890.

Weekly Return of Traffic Receipts on Indian Railways.

EAST INDIAN RAILWAY.

Approximate Return of Traffic for week ended 8th February 1890, on 1,525¼ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	269,943	3,01,366 2 0	26,08,851 0	6,30,700 2 6	20,261 15 0	9,52,328 3 6	66,100	95,401½	161,501½
Or per mile of railway ...	.....	197 8 10	.....	413 7 0	13 4 6	624 4 4	.....	.....	... ...
For previous 5 weeks of half-year	1,200,108	13,66,340 4 0	1,16,33,098 20	26,63,892 14 6	91,361 14 0	41,21,795 0 6	301,058	413,576	715,234
Total for 6 weeks ...	1,470,051	16,67,706 6 0	1,42,01,949 20	32,94,593 1 0	1,11,723 13 0	50,74,123 4 0	367,848	508,977½	876,825½
COMPARISON.									
Total for corresponding week of previous year	277,103	3,17,571 15 4	29,03,918 0	6,03,029 15 6	15,849 7 3	9,36,451 6 1	68,771	97,635	166,406
Per mile of railway corresponding week of previous year ...	.....	208 2 10	.....	395 4 9	10 6 3	613 13 10	.....	.....	.....
Total to corresponding date of previous year	1,427,207	16,94,044 13 5	1,62,45,787 30	35,55,699 7 3	86,919 0 5	53,37,263 5 1	379,803	569,099	948,902

Approximate Statement of gross receipts of the East Indian Railway, prepared in accordance with Public Works Department Circular No. XXI. Railway, dated 23rd July 1883.

Receipts for week ending 9th February 1889.			Receipts for week ending 8th February 1890.			Total receipts from 1st April 1888 to 9th February 1889.			Total receipts from 1st April 1889 to 8th February 1890.			Total increase in 1890.	Total decrease in 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
1,396½	9,36,451	614	1,525½	9,52,328	624	1,525½	3,78,76,988	552	1,525½	3,76,35,190	548	.....	2,41,798

PATNA-GYA STATE RAILWAY.

Approximate Return of Traffic for week ended 8th February 1890, on 57½ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	12,081	6 993 2 0	37,864 30	2,301 14 0	52 0 0	9,427 0 0	1,807	603	2,410
Or per mile of railway	211	122 1 4	662 0	41 13 1	0 14 6	164 12 11	.....	.....	.....
For previous 5 weeks of half-year	59,120	30,584 6 0	1,61,080 20	10,933 11 0	232 8 0	41,750 9 0	8,061	3,449	11,510
Total for 6 weeks ...	71,201	37,567 8 0	1,98,945 10	13,325 9 0	284 8 0	51,177 9 0	9,868	4,052	13,920
Comparison									
Total for corresponding week of previous year	12,453½	6,591 1 6	22,192 10	1,634 8 0	39 5 3	8,264 14 9	1,031	463	2,394
Per mile of railway corresponding week of previous year ...	218	115 3 8	388 0	28 9 2	0 11 0	144 7 10	.....	.....	.....
Total to corresponding date of previous year	70,292	37,154 5 6	1,77,389 20	10,176 4 0	200 6 9	47,531 0 3	11,018	3,350	14,368

Approximate Statement of gross receipts of the Patna-Gya State Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 9th February 1889.			Receipts for week ending 8th February 1890.			Total receipts from 1st April 1888 to 9th February 1889.			Total receipts from 1st April 1889 to 8th February 1890.			Total increase in 1890.	Total decrease in 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
57½	8,265	144	57½	9,427	165	57½	4,16,289	102	57½	4,33,609	108	17,320	.....

TARKESSUR BRANCH RAILWAY.

Approximate Return of Traffic for week ended 8th February 1890, on 22¼ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	24,561	5,274 6 0	19,605 20	503 0 0	7 11 0	5,845 1 0	890	78	968
Or per mile of railway ...	.....	237 0 10	.....	25 4 10	0 5 6	262 11 2	.....	.....	.....
For previous 5 weeks of half-year	88,641	22,305 1 0	53,403 20	2,096 8 0	33 15 0	24,345 8 0	4,119	319	4,438
Total for 6 weeks ...	113,202	27,579 7 0	73,128 0	2,599 8 0	41 10 0	30,190 9 0	5,009	397	5,406
Comparison.									
Total for corresponding week of previous year	20,748	5,410 0 0	7,878 30	270 11 0	10 12 0	5,700 7 9	925	43	968
Per mile of railway corresponding week of previous year ...	... ...	243 8 10	.....	12 2 8	0 7 9	256 3 3	.....	.....	.....
Total to corresponding date of previous year	111,516	28,213 2 4	52,470 10	1,521 1 0	41 15 9	30,076 3 1	5,159	363	5,522

Approximate Statement of gross receipts of the Tarkessur Branch Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 9th February 1889.			Receipts for week ending 8th February 1890.			Total receipts from 1st April 1888 to 9th February 1889.			Total receipts from 1st April 1889 to 8th February 1890.			Total increase in 1890.	Total decrease in 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
22½	5,700	256	22½	5,845	263	22½	2,36,958	237	22½	2,34,187	234	.....	2,771

EASTERN BENGAL STATE RAILWAY.

(INCLUDING N. B., DACCA, K. AND D., AND ASSAM-BEHAR SECTIONS.)

Approximate Return of Traffic for week ended 1st February 1890, on 747 miles open.

	COACHING TRAFFIC.		MERCHANDISE AND MINERAL TRAFFIC.		Other earnings (estimated), including steam-boat.	Total earnings.	TRAFFIC TRAIN-MILES RUN.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	147,780	80,670 0 0	6,83,760 0	1,29,910 0 0	20,820 0 0	2,37,430 0 0	22,981	33,487	56,468
Or per mile of railway ...	198	108 0 0	915 0	174 0 0	*13 0 0	295 0 0	... ..	.....	.....
For previous 4 weeks of half-year	556,510	2,74,260 0 0	23,12,320 0	5,37,600 0 0	57,190 0 0	8,69,050 0 0	82,113	132,118	214,261
Total for 5 weeks ...	704,290	3,54,930 0 0	29,96,080 0	6,67,510 0 0	84,010 0 0	11,06,480 0 0	105,124	165,605	270,729
COMPARISON.									
Total for corresponding week of previous year	129,664	70,325 0 0	5,40,724 0	87,188 0 0	25,200 0 0	1,91,803 0 0	22,385	24,430	46,815
Per mile of railway corresponding period of previous year ..	193	118 0 0	803 0	130 0 0	*12 0 0	260 0 0	.....	.....	.....
Total to corresponding date of previous year	654,769	3,38,364 0 0	24,26,800 0	5,22,488 0 0	78,157 0 0	9,39,009 0 0	103,018	135,537	238,555

* Excluding steamer earnings.

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Eastern Bengal State Railway.

RECEIPTS FOR WEEK ENDING 2ND FEBRUARY 1889.			RECEIPTS FOR WEEK ENDING 1ST FEBRUARY 1890.			TOTAL RECEIPTS FROM 1ST APRIL 1888 TO 2ND FEBRUARY 1889.			TOTAL RECEIPTS FROM 1ST APRIL 1889 TO 1ST FEBRUARY 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
673	1,91,803	285	747	2,37,130	318	673	91,81,398	310	725	*97,32,715	305	5,51,317	.....

* Audited up to week ending 14th December 1889.

BENGAL CENTRAL RAILWAY.

Approximate Return of Traffic for week ended 1st February 1890, on 125 miles open.

	COACHING TRAFFIC.		MERCHANDISE AND MINERAL TRAFFIC.		Other earnings (estimated).	Total earnings.	TRAFFIC TRAIN-MILES RUN.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	24,840	11,850 0 0	58,140 0	2,830 0 0	90 0 0	14,770 0 0	3,736	1,936	5,672
Or per mile of railway	198	95 0 0	465 0	22 0 0	1 0 0	118 0 0	...	.....	.....
For previous 4 weeks of half-year	98,490	37,080 0 0	1,48,100 0	9,470 0 0	270 0 0	46,820 0 0	13,342	6,916	20,258
Total for 5 weeks ...	123,330	48,930 0 0	2,01,240 0	12,300 0 0	360 0 0	61,590 0 0	17,078	8,852	25,930
COMPARISON.									
Total for corresponding week of previous year	24,856	9,113 0 0	55,623 0	2,454 0 0	76 0 0	11,643 0 0	3,739	1,941	5,680
Per mile of railway corresponding period of previous year ...	199	73 0 0	444 0	19 0 0	1 0 0	93 0 0	....	.....	.....
Total to corresponding date of previous year	122,906	44,005 0 0	2,20,033 0	10,968 0 0	3,075 0 0	58,348 0 0	17,635	9,138	26,773

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Bengal Central Railway.

RECEIPTS FOR WEEK ENDING 2ND FEBRUARY 1889.			RECEIPTS FOR WEEK ENDING 1ST FEBRUARY 1890.			TOTAL RECEIPTS FROM 1ST APRIL 1888 TO 2ND FEBRUARY 1889.			TOTAL RECEIPTS FROM 1ST APRIL 1889 TO 1ST FEBRUARY 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
125	11,643	93	125	14,770	118	125	6,04,503	110	125	*6,31,795	115	27,292	.....

* Audited up to week ending 14th December 1889.

DACCA STATE RAILWAY.

Approximate Return of Traffic for week ended 1st February 1890, on 86 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	16,930	5,490 0 0	30,850 0	2,870 0 0	250 0 0	8,610 0 0	2,482	622	3,104
Or per mile of railway	197	64 0 0	359 0	33 0 0	3 0 0	100 0 0	.....	.....	.....
For previous 4 weeks of half-year	61,300	22,880 0 0	1,31,100 0	13,470 0 0	700 0 0	37,050 0 0	8,854	3,498	12,352
Total for 5 weeks ...	78,230	28,370 0 0	1,61,950 0	16,340 0 0	950 0 0	45,660 0 0	11,336	4,120	15,456
Comparison.									
Total for corresponding period of previous year			15,567 0	1,515 0 0	227 0 0	6,550 0 0	2,482	622	3,104
Per mile of railway corresponding period of previous year	16,745	4,778 0 0	181 0	18 0 0	3 0 0	76 0 0	.....	.....	.....
Total to corresponding date of previous year	195	55 0 0	59,642 0	6,336 0 0	690 0 0	29,118 0 0	11,727	2,039	14,066
	73,704	22,092 0 0							

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Dacca State Railway.

Receipts for week ending 2nd February 1889.			Receipts for week ending 1st February 1890.			Total receipts from 1st April 1888 to 2nd February 1889.			Total receipts from 1st April 1889 to 1st February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
86	6,550	76	86	8,610	100	86	2,52,592	67	86	*3,30,582	87	77,990	.....

* Audited up to week ending 14th December 1889.

NALHATI STATE RAILWAY.

Approximate Return of Traffic for the week ending 8th February 1890, on 27¼ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs A. P.			
Total traffic for the week ...	3,160	1,132 0 0	10,972 0	641 0 0	15 0 0	1,788 0 0	509	254	763
Or per mile of railway	123	42 0 0	403 0	23 0 0	1 0 0	66 0 0	.....	.....	.....
For previous 4 weeks of half-year	13,804	4,839 0 0	65,437 0	4,036 0 0	65 0 0	8,940 0 0	2,327	1,161	3,488
Total for 5 weeks ...	17,164	5,971 0 0	76,409 0	4,677 0 0	80 0 0	10,728 0 0	2,836	1,415	4,251
Comparison.									
Total for corresponding week of previous year	3,400	1,431 0 0	18,155 0	1,035 0 0	12 0 0	2,478 0 0	509	636	1,145
Per mile of railway corresponding week of previous year ...	125	53 0 0	666 0	38 0 0	.....	91 0 0	.....	.....	.....
Total to corresponding date of previous year	18,354	6,913 0 0	92,864 0	4,917 0 0	97 0 0	11,927 0 0	2,908	3,274	6,182

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Nalhati State Railway.

Receipts for week ending 9th February 1889.			Receipts for week ending 8th February 1890.			Total receipts from 1st April 1888 to 9th February 1889.			Total receipts from 1st April 1889 to 8th February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
27¼	2,478	91	27¼	1,788	66	27¼	87,168	74	27¼	86,536	74	.....	632

TIRHOOT STATE RAILWAY.

Approximate Return of Traffic for the week ending 8th February 1890, on 273 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	77,541	a36,163 0 0	2,41,587 0	28,645 0 0	4,898 0 0	69,706 0 0	7,302	8,328	15,630
Or per mile of railway	284	133 0 0	885 0	105 0 0	3 0 0	241 0 0*	.....	.....	.....
For previous 4 weeks of half-year	206,211	91,397 0 0	11,30,650 0	1,26,813 0 0	23,878 0 0	2,41,788 0 0	28,066	39,750	67,816
Total for 5 weeks ...	283,752	127,560 0 0	13,72,237 0	1,55,458 0 0	28,476 0 0	3,11,494 0 0	35,368	48,078	83,446
COMPARISON.									
Total for corresponding week of previous year	40,973	16,777 0 0	1,51,932 0	14,391 0 0	3,319 0 0	34,467 0 0	5,973	5,497	11,470
Per mile of railway corresponding week of previous year ...	150	61 0 0	557 0	53 0 0	1 0 0	115 0 0*	.....	.....	.....
Total to corresponding date of previous year	*218,457	81,718 0 0	7,81,278 0	72,173 0 0	17,720 0 0	1,71,611 0 0	31,906	31,203	63,109

* Steam-boat earnings excluded in calculating "Total earnings per mile of Railway."
a Increase is due to *Maghi Purnamashi* Mela.

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Tirhoot State Railway.

Receipts for week ending 9th February 1889.			Receipts for week ending 8th February 1890.			Total receipts from 1st April 1888 to 9th February 1889.			Total receipts from 1st April 1889 to 8th February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
273	34,467	126	273	69,706	255	264·87	14,21,114	125	273	17,98,430	163	3,77,316	.....

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No. 9 of 1890.

SUPPLEMENT TO
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WEDNESDAY, FEBRUARY 26, 1890.

OFFICIAL PAPERS.

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Abstract of the Proceedings of the Council of the Lieutenant-Governor of Bengal, assembled for the purpose of making Laws and Regulations under the provisions of the Act of Parliament 24 and 25 Vic., Cap. 67.

THE Council met at the Council Chamber on Saturday, the 15th February, 1890.

Present:

The HON'BLE SIR STEUART COLVIN BAYLEY, K.C.S.I., C.I.E., Lieutenant-Governor of Bengal, *presiding.*

The HON'BLE SIR CHARLES PAUL, K.C.I.E., *Advocate-General.*

The HON'BLE F. B. PEACOCK.

The HON'BLE P. NOLAN.

The HON'BLE T. T. ALLEN.

The HON'BLE SIR HENRY HARRISON, KT.

The HON'BLE SIR ALFRED CROFT, K.C.I.E.

The HON'BLE C. H. MOORE.

The HON'BLE H. PRATT.

The HON'BLE SHAHZADA MAHOMMED FURROKH SHAH.

The HON'BLE DR. RASH BEHARY GHOSE.

The HON'BLE RAJA RAMESHWAR SING BAHADUR.

CALCUTTA PORT BILL.

The Hon'ble Sir Henry Harrison moved that the Report of the Select Committee on the Bill to consolidate and amend the law relating to the Port of Calcutta, and to the appointment of Commissioners for the said Port, be taken into consideration in order to the settlement of the clauses of the Bill.

The Motion was put and agreed to.

The Hon'ble Sir Henry Harrison also moved that the clauses of the Bill be considered for settlement in the form recommended by the Select Committee.

He said:—"I think the Select Committee may fairly claim to be satisfied with the work which they have put before the Council. It is perfectly clear that in regard to one section, eighty-five, and other matters cognate thereto, we have been confronted with very great difficulties which, I am free to admit that though we have tried our best to surmount, still remain for discussion. But putting that section aside, and the questions arising out of it, and looking to the fact that no other amendments are proposed except in regard to that matter, I think we may claim to have settled the Bill in a manner satisfactory to all parties.

"There were several other controversial questions: for instance, the question of the number of Commissioners, in regard to which the Bill can only be said not to have given general satisfaction, because the National Chamber of Commerce have expressed their dissatisfaction; but upon that point the Lieutenant-Governor gave a hearing to the representatives of that Chamber, and at the end, I think, they also were satisfied. Anyhow, it seems that no member of the Council has moved an amendment on that section. The number of members asked for has been given to the Bengal Chamber of Commerce. And, as regards the number of native Commissioners, we think it better to trust to the probability that two of the members who will be returned by the elective bodies themselves will be natives, than to say that two of the elected Commissioners must be natives. Your Honour yourself has pointed out that to the Bengal Government are allotted only five members, whereas it may be said that six interests, including the Chairman of the Municipality, require representation. As regards the Municipality, I think it is clear from our proceedings that we do not suggest any guarantee that the Chairman shall be nominated; and I may say that this is one of the six interests for which there are five vacancies—but what the Select Committee have considered, and what the Government, I believe, have accepted, is that, if the Chairman is to be a member then he can be nominated. Anyhow, it is intended that the Municipal Commissioners ought to have the right of free election without having to consider that, if they do not elect their Chairman he cannot be a member of the Port Commission.

"Then, as regards the questions as to the control of the Government over the budget and over rules to be passed by the Port Commissioners and other matters, we have settled them in a way which, from the absence of any amendment, seems to have given satisfaction to all parties.

"Lastly, as to the important question of the equitable assessment of the Port Trust property, we have introduced a new assessment section which appears to give satisfaction on the one hand to the Port Trust, and on the other hand to the Municipality and the Local Government. Your Honour appears to be satisfied with the duty imposed on the Government of mediating in the matter should it appear necessary.

"As regards the one debatable section, its details will be discussed when the amendment comes before the Council. All I wish to say now generally is, that I think the Hon'ble Mr. Moore will admit that from the first the Council has endeavoured to meet the question in a conciliatory manner, and that the impression that there was an endeavour to harden the law or to make the law more drastic, is without foundation. From the very first we introduced some modification in the former section by giving the Local Government the power of awarding compensation when they are satisfied it should be given; but it appears that the persons who are interested do not consider that an executive guarantee of that kind is satisfactory. They consider that they are entitled to some legal guarantee, and therefore in that form the section is no longer before the Council, but has been modified. Still I may fairly claim to say that from

the first the Select Committee, wherever they have touched questions of this kind at all, have always touched them in the way of softening rather than of hardening previous laws.

"It may be objected that the section was so worded as to have retrospective effect; but the old section required to be re-introduced with retrospective effect, because it has been in force for the last twenty years: and when we found there must be a discussion on it, we placed it in the more simple form of giving it retrospective effect instead of giving it effect from 1870. If the solution of giving it effect from 1870 had been considered satisfactory, no doubt the Select Committee would readily have compromised upon that basis. The only reason why it was put in the simpler form was, that the principle might come before the Council in the widest possible form; as they understood from the Hon'ble Mr. Moore that it would be contested. Otherwise no one would have objected to alter in such a way as not to take away any rights which the previous law had not taken away."

The Motion was put and agreed to.

The Hon'ble MR. MOORE moved that the following clause be added to section 2 of the Bill:—

'Nothing herein contained shall deprive any person of any right of property or other private right except as hereinafter expressly provided.'

He said:—"I have not come here with any long-set speech on this subject. All I wish to do is to capture your votes, and the less I trouble you the more chance I shall have of succeeding."

[The Hon'ble SIR HENRY HARRISON interrupting, asked whether it was more convenient that the discussion should take place over the present amendment or over the next: he was willing to accept this amendment?]

The Motion was put and agreed to.

The Hon'ble Mr. MOORE also moved that, for section 85 of the Bill, the following be substituted:—

'85. In case any wharf, quay, stage, jetty, pier, erection or mooring may have been or hereafter shall be, made, erected, or fixed within or without high-water-mark without the limits of the port, and thereafter the limits for the time being of the port shall be extended so as to include the place on which such wharf, quay, stage, jetty, pier, erection or mooring shall have been made, erected, or fixed, it shall be lawful for the Commissioners, when the safety of navigation or the improvement, maintenance, or good government of the port so requires, to remove, fill up, or destroy such wharf, quay, stage, jetty, pier, erection or mooring:

Provided that when any such work has, under this section, been so dealt with, the Commissioners shall, when such work was made on behalf of the public for the convenience of public traffic, make or provide for the use of the public such sufficient wharves, quays, stages, jetties, piers, erections or moorings as the Local Government may direct, and shall, when such work was made by any private person for the convenience of private traffic—

(*a*) on land belonging to the Government, with the previous consent of the Local Government in writing, or of which the making, erecting, or fixing has been subsequently sanctioned by the Local Government in writing; or

(*b*) on land belonging to the private owner, whether acquired by grant from the Government, or by prescriptive right, or otherwise,

make compensation therefor to the owners thereof to such an amount as may be determined by agreement by and between the Commissioners and such owners, or by the Civil Court in which a suit may be brought to establish and enforce such right of compensation.'

He said:—"I presume, I may hope, you have all read the memorial of the Chamber of Commerce, because that memorial, coupled with the dissent I previously recorded, I put in, so to speak, as my case. I wish at the outset to state that every legal allusion, historical and otherwise, in that memorial was submitted, approved, and settled by Mr. Woodroffe, the Counsel consulted by the Chamber. I specially mention this, because I have heard it has been concluded that Mr. Woodroffe did not approve the arguments set out in the first two pages of the memorial, because in the opinions quoted in the annexures he did not specially allude to them. That is easy of explanation. The opinions merely replied to specific points put to him, which did not happen to include those arguments the drift of which, I think, the Council understands.

"Briefly it is this: I maintain that this Bill as drafted discards the principle existing in the governing Ports Bill of the Supreme Government that, certain private property cannot be included within the limits of a port, and that every sense of reason and justice demands that this Bill should be brought into conformity with that principle, that is to say, with the Bill of the Supreme Government. If it is not so, it gives rise to great anomalies, as it makes the tenure of property on foreshores ruled by the Port Act totally different to that ruled by the substantive law of the land; and as no limit is ascribed to the distance to which the port may be extended, no holder of such property is secure in the understanding of his liabilities and obligations, as at any time a stroke of the pen may entirely change them. The Port Law may with the port go up to Chinsurah or Hooghly, or down to Diamond Harbour, or anywhere, and surely the perpetuation of such a state of affairs is neither sound nor just legislation.

"The section which I move indicates the principle I fight for, as well the further essential and equally sound doctrine that, when private property and rights have to be acquired for the public good,—the power to acquire which, I do not contest, must under proper conditions exist—complete compensation must be given for what is taken away, and confiscation without compensation must under no kind of circumstances be legalised.

"That was the principle enunciated by the Supreme Government when it re-enacted their Ports Bill in 1875, and it was deliberately enunciated because the true interpretation of the Act of 1855 on this point had been misunderstood in the administration of the Bengal Act V of 1870, which is shown in the remark of Mr. Hobhouse at the time, that the literal construction of the section (*i.e.*, the section in the Act of 1855 to which all my remarks refer) could not have been intended (that is to say, the construction that a private wharf could be included within the limits of the port) taken in connection with the fact that on literal construction the Port Commissioners had under Act VII of 1870 acted in regard to a private wharf, the owners of which drew the attention of Mr. Hobhouse to the circumstance, with the result that he spoke as quoted and introduced the change named.

"Now that we are re-enacting our Act passed five years before this change in the Government of India Bill, it behoves us to follow the same lines, and correct our Bill as the Supreme Government corrected theirs which governs ours. Towards this result I ask for your votes for my motion; and have only further to point out that this Bill is to rule the Port Commissioners, who are the guardians of the trade of the port, which is represented by the traders whom I represent in this Council. There is no antagonism of thought on this point between traders and their guardians; and as the representative of the traders, I say we are strongly in favour of the principle that, private property and rights within or without the port must be respected, and when acquired for public good must be paid for; that we are the people who have to pay, and being willing and desirous of paying what is equitable and proper, we press that legislation which is for us should be on these lines.

"I cannot find one dissentient voice to what I urge outside the walls of this Council; and to the best of my belief, therefore, if this motion is lost, the only opponents to it connected with the port of Calcutta will be the majority which reject it, who will by such rejection, to the best of my belief, be denying that the administration of the port should in any way recognise that private property and rights exist."

The Hon'ble SIR HENRY HARRISON said:—"It will probably be most convenient if, simultaneously with the amendment moved by the Hon'ble Mr. Moore, I move the amendment which stands in my name, as it covers the same ground. On this point, I think, I labour under a certain disadvantage, because the Hon'ble Mr. Moore has not made any allusion to this amendment; he has not stated in what respects it falls short of what he thinks right and proper. This I find a great difficulty, because the clause which I propose has been carefully worded to meet the very principles for which the hon'ble member contends."

The HON'BLE MR. MOORE continued:—"I was not aware I could allude to another amendment in discussing this. My main objections are in the third

opinion of Mr. Woodroffe, who points out the thick veil of ambiguity in which the context of the word 'lawfully' is concealed, and what it here means and implies. That in the sanction to be given by the Local Government to destruction of a jetty, it is not laid down that the party interested is to receive previous notice of the intention of the Port Commissioners, and such sanction might be applied for and given as a matter of routine by an Under-Secretary without the person interested knowing anything of it, until the notification dooming his property was pasted upon it. That my section more clearly defines the exact circumstances under which compensation is due and must be paid, and it sets out the principles which justifies private property being touched, namely, when necessary for the safety of navigation or good government of the port; whereas under the Hon'ble Sir Henry Harrison's section, power of seizure is given without naming any reason for it at all."

The Hon'ble SIR HENRY HARRISON then moved by way of amendment that, for section 85 of the Bill, the following be substituted :—

'In case any wharf, quay, stage, jetty, pier, erection or mooring may have been, or shall hereafter be, made, erected, or fixed below high-water-mark without the limits for the time being of the port, and thereafter the limits of the port shall be extended so as to include the place on which such wharf, quay, stage, jetty, pier, erection or mooring shall have been made, erected, or fixed, it shall be lawful for the Commissioners, with the sanction of the Local Government in writing, to remove, fill up, or destroy such wharf, quay, stage, jetty, pier, erection or mooring:

Provided that any person who may have lawfully made, erected, or fixed such wharf, quay, stage, jetty, pier, erection or mooring, or who may have acquired a prescriptive right thereto by possession of sixty years or upwards, his representatives or assigns, shall be entitled to institute a civil suit for the award of compensation to him for the injury caused by the removal, filling up, or destruction hereinbefore mentioned.'

He said:—"I think I interpret the general feeling of the Council when I say that if the objections to this clause are what has been stated, they are not of a very formidable character, and there is no great gulf between the Hon'ble Mr. Moore and myself. The only reason why no such clause as that to which the hon'ble member refers has been inserted is, because it is not usual to do so; because it is obviously right and proper that the Lieutenant-Governor should consult the persons to be affected, that being the usual way for the management of business. If that is the only objection raised, there will be nothing to prevent the insertion of words which will substantially secure that the interest to be affected has warning of the intention of the Port Commissioners before any order is passed." [The PRESIDENT:—"That could be done by rules."] "So far that objection can be easily removed.

"The other objection which has been taken is, that the words used are obscure. The question is, whether the obscurity is to be found in the framing of the amendment or in the subject-matter of it. If the matter itself is obscure, then legislation regarding it must, to a certain extent, correspond to that obscurity. These words were very carefully selected because it was supposed that they honestly conceded the whole principle which the Hon'ble Mr. Moore has enunciated, and which I may say generally is accepted by this Council as much as by those outside, namely, that if the Port Commissioners have to acquire any private rights they must pay for those rights. The idea of confiscation is entirely repugnant to every member of the Council, and none of us repudiate the idea less strongly than the Hon'ble Mr. Moore himself.

"The whole difficulty lies in the question, whether or not any rights do exist? It is perfectly true that the India Act of 1875 was framed with scrupulous care to prevent the possibility of its being interpreted against private rights. At the same time, I am sure, the hon'ble member will remember that Mr. Hobhouse, on being pressed to go further, not only to protect private rights but to bestow rights, said that the section would not go so far. If the India Council were asked to arbitrate in this matter, it was very probable their decision would not be in the direction wished; but they were careful to maintain any rights which did exist, and that is precisely what my amendment is intended to do.

"Now in a matter of this kind there ought not to be any strong party feeling, because it is, if I may say so, an interest legislating for itself. In many

cases where the Government or the Legislature are deciding matters, unfortunately they are obliged to recognise the existence of rival interests. The Government, whilst considering the interests of the whole community and representing it, occupies the position of an arbitrator, and is obliged to take cognizance of the fact that there are rival interests, and that it must endeavour to hold the balance evenly between them. But fortunately in this instance there are no rival interests. The Government is merely legislating on behalf of the Port Trust, and this Trust may be fairly described as a body in which the trade and commerce of Calcutta is able to organise itself for the purpose of its own benefit, for the purpose of facilitating and improving the trade of the port.

"On the other hand, the objections are raised on behalf of individual members of the community engaged in the trade of the port. So that really we here enjoy the special advantage that we are not in any way deciding between rival interests, or in any way defending one interest against another; but simply we are considering within the circle of one and the same interest how much ought to be given to the interests of the trade as a whole, and how much is fairly due to the interests of its individual members. And on this matter I am bound to say that the remark made by the Hon'ble Mr. Moore, that it is the wish of those interested in the trade that the greatest possible liberality should be shown to individual interests, ought to commend itself very much to our consideration.

"Still we are not legislating for the hour, and we must not, therefore, attach too much weight to what may be merely the sentiment of the hour. We must try and frame the law in accordance with sound and tenable principles, and must bear in mind that as the Port Trust are a body which only levies what it needs for its expenditure, and that whatever compensation is to be paid must come from the trade of the port as a whole, and whatever is saved is similarly saved to the trade of the port. Therefore I hope it will be fully realised by every member of the Council that, this case is not a very invidious one, and can in no case subject us to any invidious criticism of sacrificing the interests of one class to those of another. What we are considering is, how far the trade and commerce of the Port of Calcutta can be legitimately charged for the compensation to be paid to individual members whose interests come into conflict with those of their own body. Now putting it in that way, I must say it seems to me that the answer ought to be very simple; that every private right ought to be scrupulously respected.

"But is not it equally clear that to go beyond this is wrong and bad legislation? Supposing there is no right; supposing somebody is wrongly holding adversely to the interests of the community at large; is it not equally clear that the interests of persons with no rights ought not to be allowed to block the interests of the community? Is it not perfectly clear that the interests of the community are paramount? If you admit these two principles—and I can hardly conceive any one contending that they are not proper principles—then we are justified in passing the present amendment. We carefully preserve existing rights. Power must be given to the Port Commissioners to remove any jetty or wharf, or other structure which interferes with the working of the port; but then comes the question how far compensation ought to be given. The amendment says: 'Provided that any person who may have lawfully made, erected, or fixed such wharf, &c., or who may have acquired a prescriptive right thereto by possession of sixty years or upwards, his representatives or assigns, shall be entitled to institute a civil suit for the award of compensation.' We are told that this is ambiguous, but the ambiguity is in the character of the right, not in the wording of the section; and this is an ambiguity from which we cannot escape. We say that if a person has lawfully put up a particular jetty, then he shall be entitled to sue for compensation. Surely, this is as much as we can be fairly expected to say. If it has been lawfully put up, a suit for compensation will lie; and if, though not lawfully put up, a prescriptive right can be shown, in that case also a suit can lie for compensation. Therefore do we not here do everything that can be asked, unless we are asked to give more than exists? We say that, private rights are to have their full sixteen annas in the rupee: we only object to giving them twenty-four annas.

"The objection which fairly lies against the Hon'ble Mr Moore's amendment is, that it makes the Council the judge beforehand of a matter which should be left to the judgment of a Court of Law, namely, that compensation shall be given; that is to say, that though the Court may find that there is no case for compensation, yet we are asked to decide beforehand that compensation shall be given.

"It is well known that Courts of Law are on the whole sympathetic with the rights of individuals, and yet we are asked to legislate that in all cases compensation is to be given; that the Court is not to decide upon the question whether any compensation ought to be given, but only what the amount of compensation should be. I appeal to you to say whether, in reality, it is not *we* who have principle on our side; whether it is not we who are raising our protest against confiscation, *i.e.*, the confiscation of the rights of the public? If the principle be what the Hon'ble Mr. Moore recommends, if it is only a question of this principle, I think he would have every one of us on his side; but his own amendment does not carry out the principle. It seeks to add something to private rights. The amendment framed here has been scrupulously worded with the precise object of giving effect to what the Hon'ble Mr. Moore asks, namely, that there should be no confiscation of rights which exist; but we say also that there should be no addition of rights which do not exist.

"I may even say that my amendment goes further. Although by a law of twenty years' standing greater powers are given, namely, that the law says that no compensation shall be given, we limit it to what we think right and proper, and just; we amend the law and say, provided the structure is lawfully erected, or has acquired a prescriptive right, compensation is to be given.

"If no further fault can be found with the amendment than what has already been alleged, I ask the Council to say in what respect it falls short of what is right and proper? Does it not concede everything which the earliest opinion, and even the second opinion, of Mr. Woodroffe asked for? It concedes the case in which jetties have been lawfully put up, and the removal of which causes injury, and in such cases it specially prescribes that compensation may be claimed; and it leaves to the Courts to determine whether, according to the law of the land, a case for compensation has been established or not.

"Therefore, I hope, on all these grounds the Council will see its way to accept my amendment. I say it does not differ much from the Hon'ble Mr. Moore's amendment, but where it does differ, it is precisely upon those points on which the Council ought to insist, namely, that it refuses to give further rights—rights which do not exist; it refuses to say that a person who has not a right to compensation shall have right to get it. With these remarks I beg to recommend my amendment to the Council."

The Hon'ble MR. PEACOCK said:—"I desire to say a few words in support of the Hon'ble Mr. Moore's amendment; and I support the amendment chiefly on the ground that, by the legislation of the Government of India, an example has been set which, I think, might well be accepted by this Council. In the Acts of 1875 and 1889 largely, and certainly in the Act of 1855 to a smaller extent, not only was there no infringement of private rights—perhaps I ought not to say infringement of rights, as that would be going too far—but certainly any interference with private property has been carefully avoided.

"In section 57 of Act V (B.C.) of 1870 for the first time this principle of interference was introduced, in so far that it gave to the Port Commissioners certain rights which, it seems to me, might be carried too far in certain cases. But in section 85 as proposed in the Bill as amended by the Select Committee the same thing is re-enacted, and to a greater extent, in so far that retrospective effect is given to this power. In this section, however, there is a proviso added, that it shall be lawful for the Local Government to direct the payment of such compensation as under the circumstances may seem fair and equitable.

"But in the amended section proposed by the Hon'ble Sir Henry Harrison this proviso is entirely withdrawn, and he has explained the reasons why it was withdrawn. I am bound to say that, speaking for myself, that does not appear

to be altogether satisfactory. The Port Commissioners have now the power of doing anything in the way of removing jetties or wharves, for which they can obtain the sanction of the Lieutenant-Governor. Now, I venture to say that the Port Commissioners will never have any difficulty in putting forward so plausible an *ex parte* case that it will be almost impossible for the Lieutenant-Governor to refuse sanction. At all events, I venture to predict that sanction will be withheld in very few cases.

"Of course I know the argument which has been and which will be used against me that those encroachers on the foreshore are persons without any semblance of right, and are consequently not entitled to any consideration whatever. I am bound to admit that in this argument there is very great force, and if it were so that the limits of the port were never likely to be largely extended, I should be with the Hon'ble Sir Henry Harrison; but when we have to consider the probability, or certainly the possibility, of the port limits being extended at any moment to almost any extent in either direction, I think the case is different.

"Take the case of a man who at Titaghur erects a jetty for the landing of his goods. This may have been done even before the passing of Act V (B.C.) of 1870; he knows that he is well outside the limits of the port; he thinks, as far as he is capable of thinking on the subject, as in all probability his ideas of the rights of the Government to the foreshore are not very clear, that what he has done is absolutely legitimate; it interferes with no traffic of the river, neither can it be said to be an obstruction. But because by a stroke of the pen, as the Hon'ble Mr. Moore said, the limits of the port are extended so as to include this erection of his, it may be swept away at a moment's notice without any compensation.

"I cannot help thinking in the case, more particularly where the erection is a long way out of the port limits, that a provision such as this is likely to operate harshly. I know that I may also be met by the statement that all this opposition to section 85 is unnecessary and uncalled for; because it may be assumed that because the Port Commissioners have never done anything high-handed or inequitable, they never will do so. I am sorry I cannot accept this proposition. It may be taken for granted that the Port Commissioners will do nothing which they believe to be unfair and inequitable in any way; but at the same time, when a project is under consideration, it is astonishing how easily the facts are made to fit with what is desired; how private rights are lost sight of, more particularly where the infringement of those private rights costs nothing. For these reasons I support the amendment of the Hon'ble Mr. Moore."

The Hon'ble MR. NOLAN said:—"The motion which stands in my name on the list of business, to the effect that the existing law, as embodied in section 57, Act V (B.C.) of 1870, should be retained without alteration, was framed when the only alternative proposal before the Council was one which many considered defective, and which has since been discreetly withdrawn. The amendment now put forward by the hon'ble member in charge of the Bill seems to have been drawn with the intention of meeting, so far as is thought practicable, the wishes of the hon'ble members who represent the commercial interest, and that appears to me to be the proper course to adopt. I, therefore, support the Ho 'ble Sir Henry Harrison. The law in its present form was passed at the instance of the commercial members who sat in Council in 1870, and may very properly be altered on the motion of their successors, to whose opinion we all attach the greatest weight. Indeed I would be inclined to go further, and to let the Hon'ble Mr. Moore and those who act with him regulate the matter precisely as they propose, if the effect of our decision could be confined to the area with which they desire to deal. The section itself is of no great importance; it has been in existence for twenty years without ever being put in force, and, as the procedure it prescribes is less convenient than that of the Land Acquisition Act, it might exist unused for another century. It is the Mrs. Harris of our legislation, much talked of, but never seen. I wish we could let the Hon'ble Mr. Moore deal with it just as he wills, but unfortunately his motion is so worded as to touch other interests not contemplated by him, and to be most inconvenient as a precedent.

"In the first place, his amendment provides that private wharves and so forth shall be interfered with only 'when the safety of navigation, or the improvement, maintenance, or good government of the port, so requires.' To this there is no objection whatever; but the Hon'ble Mr. Moore fails to indicate any authority to decide whether such requirements exist or not, and thus silently remands the issue to the ordinary tribunals. This is a new principle in Indian legislation; all previous laws for the acquisition of land for public purposes having made the Local Government sole judge as to whether the land is really required or not, and I fail to see how any law can be worked without some such provision. The alternative is to leave the question to the Courts of Law, calling on the Judges to pronounce what is or is not requisite for navigation and good government, and thus creating a new source of litigation. This, however, is a small matter, to which if it stood alone I would not refer.

"But in the second place, while the Hon'ble Sir Henry Harrison provides for compensation in every case where a wharf has been lawfully erected, the Hon'ble Mr. Moore goes further, and would liberally give compensation whether the erection was lawful or not. Now this might be generous were we dealing with our own money; but it seems scarcely fair when the general tax-payer has to pay for all. And regarded in the light of a precedent, I cannot but consider the studied omission of the word *lawfully* as of the worst example. In ports, such as Calcutta, the public right of way on our great rivers is guarded by stringent laws and an elaborate organisation; but in the interior, the District Magistrates are left to defend our communications as best they can against the attacks of a hundred riparian proprietors, each very naturally caring less for the general commerce of the country than for his own private pier, or fishing stockade, or landing charges. The struggle is always going on with varying success. I speak of it from experience, having had to try many prosecutions of the kind myself as a Magistrate. Now what will be the effect on such contentions of the omission of this word *lawfully?* Obviously to indicate to those concerned that all constructions by riparian owners are legal in the opinion of this Council. Such a maxim, published without qualification, would have a very mischievous tendency by encouraging encroachments of every kind on the most important highways of our Bengal commerce; and I must maintain that the maxim itself is altogether incorrect, as a person may be the owner of land between high and low-water-mark on a tidal river, and yet have no right to make thereon any permanent erection to the injury of navigation, or without the sanction of some officer appointed in that behalf. Take, for instance, the case of a proprietor within the present bounds of the port, who has a title to the foreshore, and examine what right we have left him to make future erections, and what compensation we provide for him in case such erections are destroyed. This matter is settled by the section of the present Act preceding that now under discussion, a provision which has never been opposed, and which is re-enacted without objection in the Bill before us. It runs as follows:—

'It shall not be lawful for any person or persons, save the Commissioners, to make erect, or fix below high-water-mark within the port any wharf, quay, stage, jetty, pier, erection or mooring without the consent in writing of the Lieutenant-Governor first had and obtained. Any matter or thing which may be so erected or fixed may be removed by the Commissioners, and the persons who shall have so made, erected or fixed any such matter or thing shall be liable on conviction to a fine which may extend to Rs. 1,000, and to a further fine which may extend to Rs. 100 for every day during which such matter or thing shall have been permitted to remain so made, erected or fixed after notice to remove the same shall have been given.'

"In Calcutta, it will be seen, instead of compensation, the proprietor who builds a wharf without authority has to pay a fine of a thousand rupees to begin with, and has the prospect of subsequent fines as refreshers. Now the original proprietary rights of zemindars within the port were precisely the same as those of the zemindars whose lands lie on the other side of that fleeting boundary, from which I draw the inference that no one approving section 56 of Act V (B.C.) of 1870, and the corresponding clause in our Bill, can maintain that all proprietors as such have an indefeasible right to build wharves of any description on the foreshore they possess by the river Hooghly. It is only on the supposition that they have no such right that the law, as the Hon'ble Mr. Moore agrees to re-enact it, can be defended.

"In explanation of this limitation on the powers of zemindars, even when the land has been settled with them, I may repeat the statement contained in a written opinion of the Hon'ble Sir Charles Paul's given in 1873, and subsequently confirmed by Mr. Woodroffe, that the foreshore originally belonged to the Crown. The Crown can grant rights over it, and has done so by Regulation XI of 1825, which gives to all riparian proprietors a contingent and reversionary interest in river beds, inasmuch as the land will become an accretion to their estates when the waters change their course. Moreover, the banks and even the beds of rivers have been settled with zemindars in many cases, thereby conveying to them a right to the property for proper purposes. But the interest thus conveyed is subject to the dominant right of the public to use the river up to its utmost limit, and the adjoining tow-path, if such there be, for navigation, and inferentially to the right of the legislature to regulate that use, prohibiting whatever may interfere with its due exercise. How this was provided for at the time of settlement I may indicate by referring to the proceedings of Mr. Crow, Deputy Collector, who settled fifty-five villages near Calcutta in 1847. I will read an extract from his final report:—

'These lands therefore are in every sense of the word in their *bonâ fide* possession down to the low-water-mark in the dry season, and these landholders must accordingly be made to pay the Government revenue assessable on these lands.

'The third point regarding these banks is the right to track boats along the riverside. Of this privilege I think the boatmen should never be deprived, notwithstanding any settlement that might be made for the lands over which they are obliged to pass with ropes, or to which they have to fasten their vessels, not to mention the loss of life and property which might attend. Any interference on the part of the landholders with the boatmen at particular times—the obstructions to the navigation of the river (situated as the Hooghly is on the side of the capital of our Eastern Empire) that would follow from any prohibition which our inconsiderate landholders might think fit to put on the privilege of tracking and fastening boats—would be so serious an injury to the interests of the public that the very thought of allowing those people to interfere with the said privileges could not for a moment be entertained Yet want of due attention to these particulars has been the cause of serious and dangerous obstruction to the navigation along the bank in this and other localities near the city. Ghâts with high sides and pucca bastions of various kinds have been built up in many places right across the tracking paths, and several kinds of other obstructions caused without the least regard to the comfort and safety of those who are obliged to navigate along the banks.

'With due regard to these circumstances, which I consider of the last importance, I have, in settling these alluvial lands with the owners of the kurari properties, distinctly explained to them that the settlement now made with them will not in any manner entitle them to deprive the boatmen, who are obliged to make use of the tracts settled with them, of any of the least privileges which they have hitherto enjoyed; nor, indeed, will they be permitted hereafter to raise new obstructions along these tracks without the sanction of the authorities entrusted with the conservative care of these public thoroughfares.'

"This is the settlement to which the riparian proprietors referred when on former occasions they impugned the action of the Port Commissioners, and may be taken as indicating the title by which the land affected by this section is held.

"I willingly acknowledge that most of the works constructed on the river-bank are useful or ornamental structures, which do not interfere with navigation, and have therefore been lawfully made. For these, compensation would be payable under the Hon'ble Sir Henry Harrison's amendment. But some are said to be obstructions to which the District Magistrates might turn their attention with advantage. These are unlawful, and if they are removed, why should we give compensation for the nuisance? If the commercial members, and those with whom they act, think otherwise, they will doubtless be able to give effect to their views, commanding, as they do, the ascendant influence on the Port Commissioners. In the end, probably, compensation will be paid, however we word the section. I doubt if anyone will gain or lose a rupee by our action to-day. But I object to moulding our laws on the assumption of a principle which is not correct, and which, if generally applied, would be most injurious to commerce—the assumption, namely, that all constructions on the foreshore belonging to private owners are lawful.

"Before sitting down I would say a word in defence of the existing law, which we will naturally re-enact should neither of the amendments before us be adopted. It has been represented as a measure for confiscating property without compensation, but nothing could be more remote than this from its

character. Its real object is to enable those who constructed suitable wharves and so forth after its enactment to secure themselves by obtaining the sanction of Government, with full assurance of compensation in the event of an extension of the port; also to deter proprietors from building obstructions which could not be sanctioned. The restriction which it implies as to riparian rights near the port is much less than that imposed within the port by our present Bill. Applications under the section are constantly made and are dealt with in a very liberal spirit. These applications and the petitions made to Government in 1874 show that the law is much better known to those concerned, than the dissenting members of the Select Committee believed. If any one has through ignorance failed to apply hitherto, he can do so now that attention is drawn to the subject. As to the complaints that the section has been worked harshly, they rest on a misapprehension, for, otherwise than as a procedure for voluntary registration, it has never been worked at all. The disputes have been under the Land Acquisition Act, and with regard to another section of this Act, never as to anything done under the authority of section 57. While willing to accept any modification which does not give a sanction to nuisances, I cannot help thinking that this part of the law might very well have been let alone. It has never been worked to the injury of any man, and has been useful, in its way, by giving an assured title to the owners of many useful works."

The Hon'ble DR. RASH BEHARY GHOSE said:—"I regret that I am unable to accept the Hon'ble Mr. Moore's amendment. Apart from the criticisms which have been made by the previous speakers, it seems to me that the amendment, as it stands, is open to some very serious objections. It says, amongst other things, that it shall be lawful for the Commissioners, when the safety of navigation or the improvement, maintenance or good government of the port so requires, to remove, fill up, or destroy such wharf, quay, &c., and it then goes on to say that, if the wharf, &c., is destroyed, the owner shall be entitled to compensation.

"But I take it to be undoubted law, quite apart from any statutory provision on the subject, that when any such structure, whether erected by the Government or by any private individual, interferes with the safety of navigation, it becomes a public nuisance, and it is open to any subject of the Crown to abate the nuisance: and I do not see any reason why the Port Commissioners should be the only persons—in this country—who are to be incompetent to exercise a privilege possessed by all other subjects of Her Majesty. It is elementary to say that you do not give compensation for removing a public nuisance, and that it is in the power of any person to abate it. A public nuisance is a public offence, and it would be absurd to give compensation to a public offender.

"Then, again, I cannot congratulate the gentleman who drafted this amendment on his skill in drafting. We have heard something said about the English of the Bengal Council. But the English of our opponents is not altogether unexceptionable. Now this amendment, clause (*b*), I find speaks of 'land belonging to the private owner, whether acquired by grant from the Government or by prescriptive right;' that is to say, land acquired by prescriptive right. But, as every lawyer knows, you do not acquire land by prescriptive right, you may acquire it by prescription; but to speak of land being acquired by prescriptive right is language not familiar to lawyers. This, however, is a comparatively trifling objection.

"But there are graver objections to the proposed amendment. Compensation is claimed by the Hon'ble Mr. Moore whether the structure was lawfully or unlawfully erected. I am not now dealing with cases in which what was originally unlawful might, in the course of time, ripen into something not unlawful. The structure must be either lawful or unlawful. If it is lawful, then the amendment proposed by the Hon'ble Sir Henry Harrison would entitle the injured person to compensation. If it was an unlawful work, I do not think anybody, however liberal his views may be, however strong his notions may be with regard to what is called the sanctity of private property, would propose to give compensation for something which was unlawful. I find that the Hon'ble Mr. Moore, acting upon the opinion of the eminent Counsel consulted by the Chamber of Commerce, objects to the use of the word 'lawful' in the Hon'ble Sir Henry Harrison's amendment. If that is the only objection which the ingenuity of Counsel can make to the amendment, I do not think we have much to fear from hostile criticism.

"Confiscation of private property is no doubt a very good cry, and it is a cry which it is very easy to raise; but is there any foundation, having regard to the amendment proposed by the Hon'ble Sir Henry Harrison, for saying that we are going to confiscate private rights? We are only going, under this Act, to authorise the Port Commissioners to remove unlawful structures; but, certainly, we are not going to confiscate anything which was lawful either when it was done or which, by reason of long enjoyment, has become lawful.

"I do not propose to follow the Hon'ble Mr. Nolan through the discussion which he has raised on the vexed question, as to the rights of the Crown or of the Government in this country to the foreshore of tidal or navigable rivers. The question is, no doubt, surrounded with a great deal of difficulty; and as the amendment proposed by the Hon'ble Sir Henry Harrison renders the discussion wholly unnecessary, I do not see the good of engaging in what, under the circumstances, would be a purely academic discussion.

"'We render unto Her Majesty's Courts of justice the things which belong to them: and if I understood the Hon'ble Mr. Moore rightly, when this matter was before the Select Committee, the only grievance he felt was that we, the Members of the Bengal Legislative Council, from our imperfect appreciation of the law on the subject, took upon ourselves to determine the particular cases in which alone compensation was to be allowed; instead of leaving the determination of those cases to those who are best able to deal with them.

"Now, the Hon'ble Sir Henry Harrison's amendment proposes to do what we were told we ought to do; whilst the amendment put forward by the Hon'ble Mr. Moore would virtually exclude, as the Hon'ble Sir Henry Harrison has already pointed out, from determination by the Courts of justice of those questions which we were told only two short months ago were eminently proper to be dealt with by Her Majesty's Judges."

The Hon'ble SIR ALFRED CROFT said:—"It is with great diffidence that I rise, and I do so merely to ask what is the interpretation of the last line of the Hon'ble Mr. Moore's amendment. It has been said by the Hon'ble Sir Henry Harrison, and confirmed by the Hon'ble Dr. Rash Behary Ghose, that if the question is referred to the Courts of Law when the Port Commissioners and the private owner cannot come to an agreement, the Courts are bound to give compensation, although the structure has not been lawfully erected.

"It appears to me that the last line of the Hon'ble Mr. Moore's amendment bears no such construction. It does not say 'or by the Civil Court in which a suit may be brought to determine the amount of such compensation' but it says 'to establish and enforce such right of compensation.' What is there in the amendment to prevent the Court from declaring that there is no such right? And if no such right can be shown, that is, if the structure has not been lawfully erected, the compensation awarded will be *nil*.

"But I would now take the opportunity of saying that each of the three amendments on the paper seems to me, in the light of the discussion that has preceded, to be open to objection; and I should be very glad to know how these objections are met. I take first the Hon'ble Mr. Nolan's amendment. The objection to this seems to lie in the assumption which it makes that every wharf or jetty built below high-water-mark must have been unlawfully erected, unless the written consent of the Lieutenant-Governor of Bengal has been obtained. But I understand from what has been said by previous speakers that this is in some instances a doubtful matter, and if so, it cannot be right for this Council to declare that in no such case shall compensation be given, for that is a point which in such cases can only be decided by a Court of Law.

"Then the Hon'ble Sir Henry Harrison's amendment leaves out two points for which provision is made in the Hon'ble Mr. Moore's amendment. The first point is, that it does not state the grounds upon which it shall be lawful for the Commissioners to remove any such structure, a point for which the Hon'ble Mr. Moore's amendment does provide; because it says that the structure shall only be removed if the 'safety of navigation, or the improvement, maintenance or good government of the port so requires.' This point has been referred to by the Hon'ble Mr. Nolan, who objects to the proviso on the ground that it does not state who is to decide. It seems to me desirable that such a proviso should be adopted, qualified by some such words as 'when in the opinion of the Lieutenant-Governor the safety of navigation, &c., so requires.'

"The Hon'ble Mr. Nolan and other hon'ble members have conclusively shown that it would not be right to omit the word 'lawfully' before 'made' in the line preceding proviso (*a*) in the Hon'ble Mr. Moore's amendment, because it appears that works may be raised on private lands which still are not 'lawful' because they interfere with public rights. If, therefore, no compensation ought to be given to private owners who erect structures which interfere with public rights, then we cannot accept an amendment which gives them a right to bring a suit for compensation.

"The Hon'ble Mr. Moore's amendment further provides for cases in which wharves and piers have been erected on behalf of the public. It provides that in case such works are removed or destroyed, corresponding works giving equal facilities shall be provided by the Commissioners. But the Hon'ble Sir Henry Harrison's amendment leaves out this proviso."

The Hon'ble SIR CHARLES PAUL said:—"That is provided for by the further section (85A) to be moved by the Hon'ble Sir Henry Harrison."

The Hon'ble SIR ALFRED CROFT said:—"In that case my remark does not apply."

The Hon'ble MR. ALLEN said:—"It appears to me that Act V (B.C.) of 1870 has hardly met with fair treatment in this Council up to the present. We may assume that the Bengal Council which passed Act V of 1870 was not less competent or less capable than the Council which meets here to-day; and we may fairly presume that in passing what has been said to be a very arbitrary measure, with little regard to the rights of private individuals, the members of that Council had just as much regard for the rights of private individuals as any one here present. Now if the law as a whole is examined, it will be found that not the smallest wrong was perpetrated by the section of that Act now under consideration. The principle upon which the Act of 1870 was based was, that the responsibility for taking care of the port of Calcutta, for levying tolls on trade and for raising money to construct works of utility, by which the facilities for shipping and unshipping goods would be increased, should not rest upon private individuals; but that a public body under the control of the Government should be incorporated, in which the management would vest: looking not for dividends to be divided among shareholders, or profits to be carried off by transitory merchants, but that this public body should borrow money and simply provide for paying interest thereon, not charging the shipping anything more than was necessary for that purpose.

"The portion of the river Hughli upon which works for the discharge of cargo could be constructed is limited, and therefore such a provision was very reasonable: it constituted a monopoly which must prevail against all private rights in the port. As soon as this public body had constructed jetties and other necessary works, it was invested with the power of forbidding ships to go to any private jetty; they must come to the public jetties and pay the tolls levied at such jetties. At the time when that provision was framed, the Peninsular and Oriental Steam Navigation Company's jetty was the only jetty which had any existence, and therefore in forbidding the erection of jetties the framers of the Act of 1870 were touching no existing interests. They were merely laying down rules for the future, and warning persons who had private property on the banks of the river that they must use their private rights, subject to the rights of the Port Commissioners; and that they must not erect private jetties to compete with those erected by the Port Commissioners.

"Having made this provision with regard to jetties within the port, they further provided that in the case of jetties constructed in any other part of the river above or below the limits of the port, without the sanction of the Lieutenant Governor, afterwards, should the port be extended so as to include that part of the river, such jetties should have no advantage over jetties which might be so constructed within the former limits of the port. They touched no jetty then in existence, but they warned private persons that they should not put up such jetties, without sanction from the Lieutenant-Governor, below high-water-mark. They touched nothing above high-water-mark; but they clearly asserted that the property in the foreshore below high-water-mark

was in the Government And whatever assumed or supposed right the zemindars may assert, there is the decision of the Privy Council that the property in the bed of the river Hughli below high-water-mark, belongs to the Government.

'When we in the Select Committee had to consider that section, we found as a fact that the provision in Act V of 1870 had not been used; but instead of allowing the law to remain as before, we made a suggestion that, when any private jetty below high-water-mark is removed, the Lieutenant-Governor may order the Commissioners to make compensation. For my own par, I consider that in doing that we gave the fairest conclusion to the whole question which it was possible to give. As a shareholder in several of these mills, I myself should infinitely prefer the mercy of the Lieutenant-Governor, to taking my stand on the supposed legal rights that the Chamber of Commerce pretend to maintain

"Counsel's opinion has been taken in this matter. Mr. Woodroffe's name, no doubt, stands for a good deal; but, I must say that, as far as I have experience of Counsel's opinion, consulting Counsel is very much what consulting the Delphic oracle used to be. The consultor invariably gets an opinion which confirms him in the course which he had already determined upon. At the same time Counsel takes good care, while confirming his client in his opinion, whatever the result, that his own professional reputation shall in no wise suffer. The manner in which this is done is ingenious. Mr. Woodroffe's name is sufficient guarantee that any naked statement of law by him shall not be open to objection. His professional reputation would be terribly affected if he laid down a proposition of law which was incorrect; therefore, as far as the mere statement of the law goes, both the Advocate-General and I have no objection to what is laid down by Mr. Woodroffe. But the Chamber of Commerce imagine his opinion is entirely on their side. How is this result achieved? It is in the manipulation of the facts to which the law is to be applied. There the sympathetic effect comes in so that the client's feelings are flattered, and he feels himself a most ill-used individual. Let us see how Mr. Woodroffe does this. In paragraph 2 at the top of page 8, Mr. Woodroffe says:—

'Paragraph 6 of the Hon'ble Mr. Moore's minute of dissent gives instances in which grants of the fore-shores of such rivers have been made to private individuals, or in which individual subjects have, by prescription, acquired rights in or over such foreshores in derogation of the rights of the public.'

"Well, Sir, I challenge a reference to that paragraph of the Hon'ble Mr. Moore's dissent. There I find no such instances given, but I find a very modest statement by the Hon'ble Mr. Moore of the possibility that such a case may exist. The actual instance to which the Hon'ble Mr. Moore refers, as I have learned the facts from him and the Advocate-General, is this: A certain Deputy Collector, when out at settlement work, found some logs of wood lying on the bank below high-water-mark, and thereupon made an extra assessment on the riparian owner in respect of the use he was making of the foreshore. Does this, as far as we know, unauthorized zeal of a Deputy Collector amount to a grant by the Crown or Government of the foreshore of the river? Under the colonnade of the Great Eastern Hotel here you may see a number of hobby-horses, boxes and other articles on the foot-path; suppose the municipal assessor, when next valuing the Great Eastern Hotel, clapped on an extra Rs. 5 or Rs. 6 on account of the benefit thus enjoyed; is that to be deemed a grant to the Hotel of so much of the foot-path? Mr. Woodroffe apparently thinks it is.

"The second instance noticed by the Hon'ble Mr. Moore is this: A certain riparian owner acquired the land from a zemindar who professed also to convey the foreshore, and before doing so submitted the title to an eminent firm of solicitors, and this the Hon'ble Mr. Moore says is *primâ facie* evidence of title to the foreshore. Did he consult Mr. Woodroffe on that point? Would Mr. Woodroffe consider that the mere passing of the title through a solicitor's office was evidence of anything? Probably, if Mr. Woodroffe had been consulted he would have told him that three-fourths of the litigation which arises is due to the blunders of eminent firms of solicitors. The fact that an eminent firm of solicitors passed a title, to my mind, goes a very small way. A flimsy title backed by money is, for practical purposes, no bad thing;

and sometimes foundation enough on which to issue a prospectus and start a company. The eagerness to float companies has often been a zeal which has outrun discretion. Even if the legal point as to the foreshore between high-water and low-water is conceded to mill-owners, I believe it will be found they have transgressed in putting up jetties much below low-water-mark.

"In the second opinion of Mr. Woodroffe, the manipulation of facts is carried to a greater extent. The whole of the last paragraph of the second opinion consists in the quiet assumption of a state of things, the exact opposite of which we say is the true state. But to meet this the Hon'ble Sir Henry Harrison has introduced an amendment, by which every jetty lawfully erected is secure of compensation. What has Mr. Woodroffe to say to this? The first paragraph of his third opinion declares that, this amendment offers little security to existing jetties. This shows how from the first he had a strong suspicion that on the law of the case these gentlemen have not a leg to stand upon. No additional security for existing jetties, when every lawful jetty is to have compensation! If this is not telling them that they have no stronger case now to go to court with than they had before, then I am incapable of interpreting language.

"But the Hon'ble Mr. Moore has brought in the Government of India against us, as, in its proceedings of 1875, overruling and crushing up our Act of 1870. I very much regret the speech made by Mr. Hobhouse in 1875, as I think with all submission, that his remarks as to the intention of the Legislature in 1855 were made simply under a misapprehension, as to the bearing of the section in that Act. I see great objections to assuming that the Council in years gone by was less competent or less able than the Council of 1875; and I have a shrewd suspicion that the Council of the Government of India in 1855 was as sensible and as careful of private rights, as the Council of 1875. The only change made, however, by the Act of 1875 was to introduce the saving clause about private rights into the earlier portion of the section defining the limits to which the port might be extended by the Local Government. But the Hon'ble Mr. Moore alleges that this restriction has a sort of coercive authority over us sitting in this Legislative Council. The Act of the Government of India of 1875 does not touch the Act of this Council The section is purely a direction for the Executive Government. The Executive Government it is that has to extend the limits of the port; but when so extended, our Act of 1870, would come into full force throughout the whole area.

"The two Acts are of equal authority; the one legislature is equally sovereign as the other in authority. The Government of India, so far from having any intention to touch our Act of 1870, has shown its marked approval of it in the best way; for in 1879, in passing a Ports Act for Rangoon, the Government of India actually re-enacted section 57 of Act V (B.C.) of 1870:—

'In case any wharf, dock, quay, stage, jetty, pier, erection or mooring is, after the date on which this Act comes into force, without the consent in writing of the Local Government, made, erected or fixed below high-water mark without the limits for the time being of the port, and thereafter the limits of the port are extended so as to include the place in which such wharf, dock, quay, stage, jetty, pier, erection or mooring has been made, erected, or fixed, the Commissioners may remove, fill up, or destroy such wharf, dock, quay, stage, jetty, pier, erection or mooring, without making any compensation therefor.'

"Would it be possible to have more complete evidence of thorough approval of our legislation than to find the Government of India in its legislative capacity, with all the talent available in its Legislative Council, instead of enacting a new section, bodily transferring our section into their Act?

"As to the amendment now before the Council. The Hon'ble Mr. Moore proposes that the Port Commissioners shall be authorized to remove a wharf only in the event of its interfering with the 'safety of navigation, or the improvement, maintenance or good government of the port.' Any man who can once get his wharf on the bed of the Hughli, under the first clause of the Hon'ble Mr. Moore's amendment is protected from its removal, unless it interferes with navigation, lawful or unlawful. That, to my mind, is a most fatal objection to the Hon'ble Mr. Moore's amendment. But there is another objection to the amendment, and that is that there is not the least necessity for



its existence, inasmuch as under the provisions of the Indian Ports Act of 1889, section 12,—

'If any obstruction or impediment to the navigation of any port subject to this Act has been lawfully made, or has become lawful by reason of the long continuance of such obstruction or impediment, or otherwise, the Conservator shall report the same for the information of the Local Government, and shall, with the sanction of that Government, cause the same to be removed or altered, making reasonable compensation to the person suffering damage by such removal or alteration.'

"The existence of this section in the Ports Act of the Government of India of 1889 does away with the necessity for the Hon'ble Mr. Moore's amendment, which simply proposes to re-enact in a feebler manner what is already the law. Mr. Woodroffe in his complaisant third opinion objects to the word 'lawful,' as being ambiguous. There is precedent enough, seeing the Government of India in the Act of 1889 uses this word. No ambiguity lies in the word 'lawful,' but the ambiguity lies in the peculiar circumstances under which most of these jetties have been run out. I take two objections to the first clause of the Hon'ble Mr. Moore's amendment—*first*, because it does not authorise the Commissioners to remove a jetty erected without any legal right until it becomes an obstruction to navigation; and *secondly*, because it is a mere repetition of section 12 of the Ports Act of 1889; and these objections ought to be fatal to the amendment proposed by him.

"With reference to the amendment proposed by the Hon'ble Sir Henry Harrison, I certainly think it concedes everything that the Chamber of Commerce or the gentlemen in whose name it speaks have any right to expect. But, after all, what is the whole dispute? The whole discussion on section 85 is without any practical bearing. It is a mere fight in the air. I suppose some gentlemen here have kept dogs and know that on full moon young dogs bark furiously at the moon. The legend is, they fear, the moon is about to fall on them. This seems to me the best illustration of the fantastic fears which have stirred up the Chamber of Commerce gentlemen. They are alarmed lest something should happen which cannot possibly happen. The only possibility of its happening is if the port should be extended up the river to Barrackpore. Did any one ever hear of a port that moved up a river? I challenge any gentleman to show me a case, and especially up such a river as the Hooghly. But I quite agree with what has fallen from the Hon'ble Mr. Nolan, as to the importance of not letting in words into this Act which may lead to a false interpretation of the general law, and which would have effects far beyond the port of Calcutta. We know that throughout the mofussil on the banks of rivers the zemindars are asserting rights which are entirely incompatible with the free navigation of those rivers, and for the most part they succeed in carrying their point. Therefore, it is of the utmost importance not to introduce any words in this Act which could in any way strengthen or back up encroachments of this kind."

The Hon'ble SIR CHARLES PAUL said:—"I wish to say a few words. I consider the subject not capable of any serious discussion. Whilst on the one hand we are to remember that in legislating we should not confiscate property belonging to others; on the other hand we should equally remember that we should not enact anything which would enable the Port Commissioners to throw away their money, and put it into the pockets of people who are not entitled to receive it.

"The Hon'ble Mr. Moore has correctly enunciated his first proposition, namely, that a person should be fully recompensed for the loss of his private rights. I quite agree with him; but if there are no private rights, public money should not be thrown away in paying for what does not exist. The question therefore reduces itself to this: Are there such private rights as have been stated to exist? In 1870, this Council decided that there were no such private rights, and enacted that nobody should, after 1870, make any wharves or jetties without the permission of the Lieutenant-Governor. To that provision of law exception had been taken, and we have been told that we should not decide upon such rights.

"And yet, looking to the Hon'ble Mr. Moore's amendment, it is plain that we are called upon to recognise such rights as he puts forward, and to give compensation for their removal. But if we are called upon to decide as

to such rights, there are members of Council here present who are quite strong enough to decide upon such rights, and to decide upon them in the way in which Sir Arthur Hobhouse informed the memorialists that he would decide them if he were forced to do so. It was because this Council did not wish to decide upon such rights that a middle course has been taken in the proposal put forward by the Hon'ble Sir Henry Harrison.

"Now the Hon'ble Mr. Moore wants us to recognise those rights; he wants that, whenever a person puts up a wharf, or a jetty, or a stage on the foreshore of the river, you should, whenever it becomes necessary in the interests of the public to remove such wharf, or jetty, or stage, make compensation as if the man had a right to put up the wharf or jetty there. He wants us to recognise that principle. But if, in the opinion of persons competent to judge, there is no such right, then why should compensation be paid?

"Take the case which the Hon'ble Mr. Allen has put, that somebody, having no possible right to do so, presumed to put up an obstruction on the foreshore of the river. Would it be fair to give him compensation for the removal of that obstruction? The Hon'ble Mr. Moore would say, I do not ask for that. He says compensation should be given when the obstruction is put up on land belonging to the private owner, whether acquired by grant from the Government, or by prescriptive right or otherwise. 'Otherwise' may include by theft or by invasion. There is nothing to prevent a person clandestinely putting up an obstruction in a remote part of the river. Let us see whether the right is one which can exist or not.

"Mr. Woodroffe in his first opinion points out that the right cannot exist when it interferes with the navigation of the river. Therefore, if you ask for compensation, you must first satisfy the person who has to award the compensation that it does not interfere with the navigation of the river, because, if it does interfere with navigation, it is removable under the general law of the land and Regulation XI of 1825.

"Then, take the cases which the Hon'ble Mr. Moore gives of obstructions raised on lands granted by the Government. These grants referred to settlements made by Mr. Crow of lands down to low-water-mark. In considering those cases you would have to examine the meaning of the settlement. What was settled? What was given? Were they given for agricultural purposes, or for what purposes? If you come to the conclusion that they were given for agricultural purposes, that would give a right to cultivation down to low-water-mark.

"We all know that in the dry season lands are in some places cultivated down to low-water-mark, but it never was intended that the settlements so made should be in derogation of public rights of navigation. They could not in any way interfere with the rights of navigation. It never could have been intended that under settlements of that sort a man, instead of growing crops upon the land, would have a right to put up a jetty down to low-water-mark.

"In the case of lands granted by the Government, the parties who ask for compensation would come in and say, this is our land and we can do what we like with it; and if we do put up a house or a stage, we have lawfully done it, and if you remove what we have put up, you shall pay in compensation. If the case is put in that way, it is a case that might admit of the answer already given. And, suppose such a case could be put, it would be a disputed case.

"Then is it right for the Hon'ble Mr. Moore and those who are with him to say that, although the case may well be disputed, whether land granted for purposes of cultivation can be used so as to interfere with the navigation of the river, yet such dispute should be shut out by legislation. Take the case of the consent of the Local Government given in writing, which would be generally considered as a strong case. Even, in such a case, a question may arise as to the competence of the Lieutenant-Governor to give his consent.

"We hear of people in Benares running their sewers into the river and thus polluting the river. I maintain that the consent of the Local Government would not justify any person in committing such a nuisance. The Port Commissioners are entitled to say that compensation should not be given for an unlawful act which was removable before by the executive authority, and which the law under consideration will enable him to remove.



Does the Hon'ble Mr. Moore want us to decide whether in such cases compensation should or should not be given? I, for one, am quite prepared to decide that question. It has been ruled by the Privy Council in 6, Moore's Indian Appeals, that the bed of the river Hughli up to high-water-mark is the property of the Crown; and it being so decided by the Privy Council, we may take it, that every person who makes any obstruction in the bed of the river commits an offence for which he may be indicted under the law.

"In England the law is so strict that, if you put up a stake or post in the river you will be liable to be indicted and to be severely punished; and yet can it be contended here that, while on the one hand any person putting up a structure between high-water and low-water-mark can be indicted for a nuisance and subjected to fine; on the other hand he is supposed to possess such a right that he is to be entitled to compensation for the removal of the obstruction? A misconception of this kind could hardly go farther. Therefore, if we are called upon to decide upon the alleged right, we should have no hesitation in deciding that we should give no compensation at all. But, since it might be a harsh measure to make this Council usurp the place of the judges of the land and prevent people from making claims, we propose to give them every opportunity to do so. Therefore, the section provides that, whoever lawfully makes or erects any such structure shall be entitled to institute a civil suit for the award of compensation to him for the injury caused by the removal of such structure. This word 'lawful' is used advisedly. Where the facts constitute a thing to be lawful, it shall be lawful; but we say questions of that kind must be determined by the Courts. In the section proposed by the Hon'ble Mr. Moore we have the word 'otherwise.'

"The word 'lawful' is in no sense ambiguous: the word 'otherwise' is clearly so. The amendment first proposed in behalf of the Government was objected to, and now, when the word 'lawful' is put in in order to admit of every possible claim, objection is taken to that word. I do not wish to enlarge on the subject because I always give credit to persons setting up rights that they are actuated by sincere feelings; though I am bound to say that in this case this matter has been looked at with one eye kept open, and the other closely shut, so as not to admit of an adverse view. I think I have shown inconsistences in the views advanced.

"We have steadily followed the lines laid down by Sir Arthur Hobhouse in the Act of 1875, which, he said, would not in any way prejudice or touch the rights of private property. If there is a cause of action, well and good: compensation will be obtained; otherwise the Courts will not give compensation. What is there to complain of? The Hon'ble Mr. Moore says, here is a wharf erected by me on land granted by Government. If that wharf does not interfere with the navigation of the river, the Courts will give compensation But if it is erected otherwise, the Courts will not give compensation. How can this Council recognise and confirm private rights, the existence of which is asserted on one side and denied on the other side? The only remedy is to let the Courts decide whether or not those rights exist. If they want a decision on this point, I am quite ready to abide by Mr. Woodroffe's opinion. No lawyer in the land, much less a lawyer of the experience of Mr Woodroffe, would come to a different conclusion. The law is clear; but, as the Hon'ble Dr. Rash Behary Ghose said, in this country, the question to whom the bed of a river belongs when the river has deserted its course and gone in another direction, is doubtful. It is quite possible it belongs to the zemindar of the adjacent lands with whom the settlement has been made. But that is not the question here. We have here a river which remains in one channel, and in regard to which the Privy Council has decided that its bed is the property of the Government. We must either decide upon the alleged rights ourselves or leave it to the claimants to bring their suits; and the section has therefore been so drawn as to give every possible freedom for legal remedies (if any).

"I need hardly say anything further beyond pointing out, as observed by the Hon'ble Mr. Nolan, that as in the case of large tracts of land the declaration of the Government is taken as final; so where a notification of Government made under similar circumstances regarding a much less important matter, should be admitted to be final. That the parties should have a right to represent their case to the Government is right and proper,

and I have no doubt that some rule or order to that effect will be made. The Government is most desirous to control the arbitrary power of the Port Commissioners, and one would have thought that, having regard to the future constitution of that body, the use of the word 'arbitrary' as applied to them, would disappear. The Bill, however, provides a restraint upon the power of the Commissioners by interposing the judgment of one who, without risking his position, could not act 'arbitrarily.' That people may arbitrarily interfere is possible, but there are checks to arbitrary interference. Government officers and others are subject to some sort of jurisdiction when they act arbitrarily, and the Courts of Justice can be trusted to interfere when public bodies act in infraction of the law.

"I entirely dispute the proposition involved in the section proposed by the Hon'ble Mr. Moore to be substituted for section 85, and I support the amendment of the Hon'ble Sir Henry Harrison, which, I think, is conceived in a spirit of fairness. The amendment proposed by the Hon'ble Mr. Moore would give compensation, whether the act done was lawful or unlawful; and that was a form of compensation which, I think, the Legislature would not be disposed to give out of the pockets of the Port Commissioners."

The Hon'ble MR. MOORE said in reply:—"It is exceedingly difficult for me to reply to all the objections which have been made to my amendment; especially when arrayed against me is one of the ablest advocates of the Bar, and I have not Counsel at my elbow to advise me. But I find one crumb of comfort in his speech, that he is willing to trust to Mr. Woodroffe's opinion." (SIR CHARLES PAUL:—"His first opinion.") "Well, it is in that first opinion that Mr. Woodroffe says, I have ample reasons for pressing for the protection of existing rights. I am very gratified to find that the whole tenour of the debate concedes this necessity which I have pressed, and there only remains the form of section to be agreed to in place of the existing one. I am perfectly willing to concede the main objections which have been raised to my draft. I see the force of the Hon'ble Sir Alfred Croft's objection that, it is not laid down who is to judge whether a structure is in the way of navigation, &c., and I am willing to meet this by adding in line 6 the words 'when in the opinion of the Local Government.' I also beg to repudiate the idea that I suggest, or ever intended to suggest, that any works unlawfully made should be compensated, for of course, if the law has been broken, the consequences must be abided; and in testimony of this, I am willing to add the word 'lawfully' in line 13 between the words 'was' and 'made,' though, I believe, I am in the alteration to a certain extent giving myself away. Other objections made are more in matter of detail, and if, as the Hon'ble Dr. Rash Behary Ghose pointed out, the words 'by prescriptive right' ought to read 'by prescription,' I alter them to such effect. With the changes thus made I commit my amendment to the votes of the Council."

His Honour the PRESIDENT said:—"Before putting the various amendments to the vote, I wish to say a few words for my own part. And, first, I must say I agree with the Hon'ble Mr. Nolan that for practical purposes the whole fight—and a very interesting fight it has been—has been of a purely academical character, and it is a phantom from whichever point of view you regard it. In the first place, this section only takes effect in case of the limits of the port being extended. Whoever has read the history of the port, which was extended from Calcutta downwards—not because we wanted an extension, but because we wanted Budge-Budge—and really supposes that, under existing conditions, the Port Commissioners will desire to have the port extended up the river—I can only say I cannot understand on what possible grounds such a probability could be expected. From that point of view, I think the whole discussion has been a purely academical one; as also from another point of view, which was put forward by the Hon'ble Mr Nolan, namely, that the Port Commissioners have had this section on the Statute Book for the last twenty years and have apparently never used it.

"But from another point of view, the discussion has been a very useful one. It has opened out, not without inconvenience perhaps, certain large questions, but it has enabled us to justify the object and history of this section. That some justification is necessary, I think you will admit, when I read to you what has been said about this Council by a gentleman who telegraphs home

information from Calcutta to the *Times* newspaper. Speaking of this section, he describes it as follows:—'The inequitable and mischievous character of the power proposed to be conferred on the Commissioners in all cases of extension of the port to remove and destroy all buildings'—mark that, please,—not buildings in the bed of the river, nor buildings between high and low-water-mark—but 'all buildings which may have been erected prior to such extension without formal sanction by the Local Government and without making any compensation' This is what we are deliberately accused of doing on the authority of the gentleman who telegraphs to the *Times*. Then he goes on to say:—'This power of arbitrary confiscation would be a serious blow dealt at commercial interests, and would imperil mills and other commercial property exceeding in value a crore of rupees.' Perhaps my hon'ble friend can tell me what mills are referred to as in jeopardy to the extent of one crore of rupees. 'Corporations,' he continues, 'are proverbially high-handed'—(I believe in this case there are at least five members of the Chamber of Commerce on the Corporation referred to)—'and the callous conduct of the Government in like cases in the past by no means justifies unlimited confidence to their commercial justice in the future.'

"Now, that is the sort of assertion that goes about all Europe in regard to legislation conducted by this Council. To understand the section at all you must study the Act of 1870, and as it has been recently altered, a certain knowledge of the history of the whole question is necessary, which probably those who have been attacking us have not taken the trouble to acquire That history has been gone into pretty fully in to-day's discussion, and I shall, for my part, only refer to it very briefly indeed. We need not go behind the Act of 1855, which was the basis of the subsequent legislation by the Government of India, namely, the later Act of 1875, and again the present Act of 1889 in regard to ports and port fees. That Act was, as has been pointed out here, a direction to Executive Governments in dealing with ports which were not brought under any special enactment. But subsequently—and among them Calcutta—various other ports have been brought under special enactments. The section which was introduced into the Act of 1870 was no doubt introduced in conformity, or in supposed conformity, with the law of 1855 as it stood then. There was very little discussion in the Bengal Council about it. I have referred to that discussion and have it here. But what little discussion there was, consisted in the commercial members extending and not limiting its scope. As originally proposed, it was only in cases of extension of the port within one mile of the then limits, and the commercial members said: 'No. If this is the law, why limit it to one mile? Wherever the port is extended the law shall stand.' This was accepted. But it does not seem to have attracted very much attention at the time.

"Subsequently, when the Act of 1855 was before the Government of India for amendment, it attracted attention. There were two memorials presented, and the whole matter was discussed by Mr. Hobhouse. The memorials were based upon the claim of riparian owners to have the right of ownership in the foreshore, which the Act of 1870 had jeopardised, and which they wanted to be in some way, by some side-wind, acknowledged and admitted into the Act of 1875, and this Sir Arthur Hobhouse distinctly refused to admit. I need not read all he said, but there are one or two points I wish to make clear about it. He said:—

'Now, I mentioned that the riparian owners took a lively interest in this Bill, and the reason is that they are engaged in a controversy with the Port Commissioners, or the Bengal Government, or both, respecting some rights claimed by them over the foreshore down to low-water-mark. So they have addressed us on paper, and have also had the kindness to meet us in conference, and have urged that the new Bill ought to contain something to place them in some more favourable position, by recognising the fact of their claims, and at all events the possible validity of them, which, they say, is denied by their opponents. Now, there may be claims to private property of such a kind and on such a scale as to justify the Legislature in interfering to settle them. But these Calcutta controversies did not appear to us to be of such character. They appear to possess the characteristics of ordinary lawsuits, and we could not see why we should be called upon to interfere on one side or on the other Indeed, I do not suppose that the riparian owners would be pleased if we interfered on the side of the public, and neither the Port Commissioners nor the Bengal Government have asked us to do so. Well, then, our position is that whatever right the public have against the claims of private property, and whatever protection private property has received against the claims of

the public, are to be found in the existing Act of 1855 and have been thereby ascertained and regulated for twenty years. It may indeed be for more than twenty years, but we have not looked behind the Act of 1855. At all events for twenty years the public have had the rights which the existing law gives them, and we could find no reason why those rights should now be lessened.'

"The result of that was, that Mr. Hobhouse distinctly said that he looked upon these questions between riparian owners and the Government of Bengal, or rather the Port Commissioners, as questions for litigation and not for legislation. He distinctly rejected the claim of the memorialists to put anything into the Act, which should imply that our section in the Act of 1870 was in any way wrong or erroneous. As the Hon'ble Mr. Allen has pointed out, this is the identical section about which such very strong language has been used in the *Times* newspaper, and this identical section was deliberately repeated word for word and incorporated in the Act passed by the Government of India for the port of Rangoon—not before the discussion of 1870, but in 1879, after the whole question was before them. The main object of the section of 1870 was, as I understand it, to give riparian owners a warning that, in future, if they chose to erect jetties, or any of those other erections, on ground below high-water-mark, they must get permission to erect it, otherwise they were doing it at their own peril, and they must not expect compensation for it. This has been the law of the land for the last twenty years, and since 1875, I do not think anybody has heard any complaint.

"The Select Committee in altering the Bill necessarily gave the wording of the Act of 1870 a retrospective shape. So 'shall' they necessarily changed into 'may have been' so as to make it in accordance with the law of 1870; but they did not include what they might have included—an exception for anything built or erected before 1870. If they had done so, I do not think there would have been a word altered: it would have remained exactly as it stood, and I do not see how anybody could have taken exception to it. But it is perhaps not a very serious matter, as I understand the number of jetties built previous to 1870 is something exceedingly small. Now, however, the whole principle has been taken exception to. Well, on receiving the protest of the Hon'ble Mr. Moore, as a member of the Select Committee, I discussed the question with the members of the Select Committee, and the outcome of it was, the amendment as it stood to be introduced into the Council some three weeks ago. Well, that amendment apparently did not meet altogether with the views of the Chamber of Commerce. The point about the amendment was, that it tried to state explicitly the only circumstances under which compensation could be claimed, but that it did not satisfy the hon'ble member opposite (Mr. Moore), may be taken from the fact that his own amendment inserts the words 'or otherwise' after repeating practically what was in the amendment of the Hon'ble Sir Henry Harrison.

"Very well: finding that that did not satisfy him, and after reading the memorial of the Chamber of Commerce, the matter was subjected to further reconsideration, and the result was this section as it now stands This section, as it now stands, is based exactly upon what Sir Arthur Hobhouse said in Council in 1875, that these questions between the Government and the riparian owners are questions not for legislation, but for the Law Courts. If they appealed to the Law Courts, the Law Courts would settle them. We decline to say or to give any indication of the circumstances under which compensation shall be given, except that the jetty or other erection shall have been lawfully erected and built. Nobody, I think, could criticise that section on the ground that the word 'lawfully' is not sufficiently clear. To say that it is ambiguous shows either one of two things—either that they want to include more than is lawful, or that they must be very hard put to find fault with our amendment. I must say for myself that I was inclined to prefer the amendment as originally drawn up, but now that I have seen the very weak nature of the objections taken to the amendment as it stands, I unhesitatingly give my opinion in favour of the new amendment.

"The only point which has not been really noticed in the discussion which has taken place to-day is, the objection that the Government of Bengal will not give the party injured an opportunity of being listened to. I observe that that remark was supported by my hon'ble friend on my left (Mr. Peacock), for many years Secretary to the Government of Bengal, and

who ought to know perfectly well what does really happen. I do not think it is necessary to introduce any remedy for this in the Bill, but I am perfectly prepared to remedy it by a rule setting forth that in any case in which an application is made to the Government of Bengal for direction to demolish these jetties, no order shall be passed upon it until an opportunity has been given to the persons concerned of being heard. And, so far as I am myself concerned, I pledge this Government to carry that out.

"We have received, besides the memorial from the Chamber of Commerce, a memorial from the British Indian Association. That memorial covers a very large area of ground; it goes into the question of the rights of riparian owners all over Bengal. Now, I say emphatically that the questions raised by the British Indian Association do not arise in connection with this question. The question is a very difficult one, and may be a very important one; but this Bill at all events is not the occasion on which to discuss it. It does not arise necessarily out of anything in this Bill, and 'sufficient to the day is the evil thereof.' When the time comes for raising the discussion, I have no doubt the British Indian Association will put their views before us in full form and with full force. But as I said before, after giving their memorial all consideration, I find that really it at no point touches the question that now comes before us.

"The only question remaining is, that as between the amendment proposed by the Hon'ble Mr. Moore and the amendment proposed by the member in charge of the Bill. I am bound to say that the alterations which the Hon'ble Mr. Moore has now made in his amendment, have taken away a very considerable amount of objection to it. But, on the whole, I think that the Hon'ble Sir Henry Harrison's amendment is, if not in appearance, in reality more liberal, because it does not pretend to define the circumstances under which compensation may be claimed as the Hon'ble Mr. Moore's does; and I think the Hon'ble Sir Henry Harrison's amendment the more convenient one and a better drafted one, and I myself prefer it."

The Hon'ble MR. MOORE moved that the following revised section be substituted for section 85 of the Bill:—

"85. In case any wharf, quay, stage, jetty, pier, erection or mooring may have been or hereafter shall be, made, erected, or fixed within or without high-water-mark without the limits of the port, and thereafter the limits for the time being of the port shall be extended so as to include the place on which such wharf, quay, stage, jetty, pier, erection or mooring shall have been made, erected, or fixed, it shall be lawful for the Commissioners, when in the opinion of the Local Government the safety of navigation, or the improvement, maintenance or good government of the port so requires, to remove, fill up, or destroy such wharf, quay, stage, jetty, pier, erection or mooring:

Provided that when any such work has, under this section, been so dealt with, the Commissioners shall, when such work was made on behalf of the public for the convenience of public traffic, make or provide for the use of the public such sufficient wharves, quays, stages, jetties, piers, erections or moorings as the Local Government may direct, and shall, when such work was lawfully made by any private person for the convenience of private traffic—

(*a*) on land belonging to the Government, with the previous consent of the Local Government in writing, or of which the making, erecting, or fixing has been subsequently sanctioned by the Local Government in writing; or

(*b*) on land belonging to the private owner, whether acquired by grant from the Government, or by prescription, or otherwise,

make compensation therefor to the owners thereof to such an amount as may be determined by agreement by and between the Commissioners and such owners, or by the Civil Court in which a suit may be brought to establish and enforce such right of compensation."

The amendment being put, the Council divided:—

Ayes.	*Noes.*
The Hon'ble Raja Rameshwar Sing Bahadur.	The Hon'ble Dr. Rash Behary Ghose.
The Hon'ble H. Pratt	The Hon'ble Shahzada Mahommed Furrokh Shah.
The Hon'ble C. H. Moore.	The Hon'ble Sir Alfred Croft.
The Hon'ble F. B Peacock.	The Hon'ble Sir Henry Harrison.
	The Hon'ble T. T. Allen.
	The Hon'ble P. Nolan.
	The Hon'ble Sir Charles Paul.
	His Honour the President.

So the Motion was lost.

The Hon'ble SIR HENRY HARRISON's amendment that, for section 85 of the Bill, the section as proposed by him be substituted, was put to the vote and agreed to.

The Hon'ble MR. NOLAN, by leave of the Council, withdrew the following notion of which he had given notice:—

'That the existing law on the subject, as contained in section 57 of Act V of 1870, be left unaltered. Section 85 of the Bill will then run as follows:—

"In case any wharf, dock, quay, jetty, pier, erection or mooring shall, after the seventeenth day of October, 1870, without the consent in writing of the Lieutenant-Governor of Bengal, have been fixed, excavated, erected, or built below high-water-mark without the limits for the time being of the port, and thereafter the limits of the port shall be extended so as to include the place in which such wharf, dock, quay, jetty, pier, erection or mooring shall have been fixed, excavated, erected or built, it shall be lawful for the Commissioners to remove, fill up, or destroy such wharf, dock, quay, jetty, pier, erection or mooring without making any compensation therefor.'

The Hon'ble SIR HENRY HARRISON moved that, between sections 85 and 86 of the Bill, the following section be inserted:—

'85 A. Whenever any wharves, quays, stages, jetties, piers, erections or moorings have, under the last preceding section, been removed, filled up, or destroyed, the Commissioners shall make or provide for the use of the public such sufficient and convenient wharves, quays, stages, jetties, piers, erections or moorings in the place of those that may be removed, filled up, or destroyed, as the Local Government may direct'

The Motion was put and agreed to.

The further consideration of the Bill was postponed till the next sitting of the Council.

The Council adjourned to Saturday, the 22nd February, 1890.

CALCUTTA;
The 20th February, 1890.

C. H. REILY,
Assistant Secretary to the Govt. of Bengal, Legislative Department.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, and State and Prospects of the Crops in the different districts of Bengal, as reported to Government, during the week ending the 22nd February, 1890.

No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
BENGAL.			
	Western Districts.		
BURDWAN DIVN. 1	Burdwan Feb. 22, '90	Nil	Weather—rather warm. Prospects of *rubbi* crops favourable. Sugarcane promising. Potato almost fair. Prices of common rice :— Srs. Burdwan ... ... 18 / Culna ... ... 16 / Cutwa ... ... 16½ / Kanigunge ... ... 20 } per rupee.
2	Bankoora „ 22, '90	Nil	Weather—getting warm. *Rubbi* crops coming on well; a ten-anna outturn is expected. Pressing of sugarcane proceeds; outturn 13½ annas. Common rice 19 seers per rupee at Suddor and 20 seers at Bishenpore.
3	Birbhum „ 22, '90	Nil	Weather—warmer. Prospects of crops fair. Common rice selling at 17 to 20 seers per rupee.
4	Midnapur „ 22, '90	Nil	Weather—getting warm. General prospects good. *Rubbi* being gathered in the Sudder subdivision. Prospect fairly good. Indigo doing well. Prices of rice :— Srs. Sudder ... ... 18 / Contai ... ... 26 / Tamluk ... ... 18 / Ghatal ... ... 20 } per rupee.
5	Hooghly „ 22, '90	Nil	Weather—seasonable. *Rubbi* yielding good outturn. Prices of common rice :— Srs. Sudder ... ... 12½ / Serampore ... ... 14 / Jehanabad ... ... 17½ } per rupee.
	Howrah „ 22, '90	Nil	Weather—warm in the day, cool at night. Transplantation of *boro* paddy completed. Prospects good. Prices of common rice :— Srs. Howrah ... ... 12½ / Uluberia ... ... 16 } per rupee.
	Central Districts.		
PRESIDENCY DIVN. 6	24-Perghs. Feb. 22, '90	Nil	Weather—seasonable. Good *amun* crop has been harvested. Winter crops are being harvested, and promise well. *Boro* rice doing well. Price of common rice 16 seers per rupee.
7	Nuddea „ 22, '90	Nil	Weather—seasonable. Prospects of crops on the ground favourable. Linseed, mustard, and tobacco being harvested. Cultivation of land for *aus* going on. Rain wanted.
8	Khoolna „ 22, '90	Nil	Weather—warm during the day, but cool at night. State of *boro* and *rabbi* crops fair.
9	Jessore „ 22, '90	Nil	Weather—days hot, but nights cold. Ploughing of rice lands and harvesting of winter crops going on. Outturn of linseed expected to be 12 annas. Prices of rice stationary.
10	Moorshedabad „ 22, '90	Nil	Weather—cool and clear. *Rubbi* harvesting has begun.
RAJSHAHYE DIVN. 11	Dinagepur „ 22, '90	Nil	Weather—days hot, but nights cool Harvesting of *amun* rice nearly over Land is being ploughed for *bhadoi*. Harvesting of winter crops and pressing of sugarcane continue.
12	Rajshahye „ 22, '90	Nil	Weather—hot in the day, but cool at night. Harvesting of *amun* paddy over in the Nattore subdivision with an average outturn of 10 annas only. Prospects of *rubbi* crops good generally. Ganja manufacture continues at Nowgong. Rice sells at 17 seers 2 chittacks per rupee.
13	Rungpur „ 22, '90	Nil	Weather—hot days, but cool nights. Mustard is being gathered with a fair outturn. Other standing crops are promising. Ploughing operations are in active progress.
14	Bogra „ 22, '90	Nil	Weather—seasonable. Land is being ploughed for *aus* paddy and jute. State of standing crops (such as peas, linseed, gram, &c.) reported to be good. Common rice selling at 22 seers per rupee.
15	Pubna „ 22, '90	Nil	Weather—seasonable, Mustard and tobacco expected to be 12-annas crops. Sugarcane deficient. Rain wanted, especially for *cheena* and *kaon*.
16	Darjeeling „ 22, '90	Nil	Weather—fair. Wheat and barley progressing favourably. In Terai, land is being prepared for *bhadoi* crops and jute. Price of common rice continues the same as in last week, viz.,— Srs. Darjeeling ... ... 12 / Kurseong ... ... 13 / Silliguri ... ... 19 } per rupee.
17	Julpigoree „ 22, '90	Nil	Weather—seasonable. Tobacco crop injured by hail in the northern taluks of Mynagori tehsil, but in other places it is favourably reported on. No change in prices.

No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospects of the crops.
BENGAL—*concluded.*			
	Eastern Districts.		
18	Dacca Feb. 22, '90	Nil	Weather—days getting warm, but nights cool. Winter crops doing well. *Cheena* and *kaon* being sown. Mustard and sugarcane being cut. Fodder is available. No special change in the prices of food-grains. Common rice 13 to 14½ seers per rupee.
19	Furreedpur „ 22, '90	Nil	Weather—growing warm; night of 17th especially sultry. Mustard nearly picked; outturn 10 annas. Other *rubbi* crops promise fairly, as also *jali* rice. Cultivation for *aus* rice and *til* in progress. Sugarcane and date-juice being made into molasses. Coarse rice selling at 16 seers per rupee at Sudder and Goalundo, and at 15 seers per rupee at Madaripur.
20	Backergunge „ 22, '90	Nil	Weather—seasonable. Prospects of *rubbi* crops good. Rain wanted. Common rice sells at 14 seers a rupee.
21	Mymensingh „ 22, '90	Nil	Weather—seasonable. Cultivation of *aus* and jute in some lands has begun. Mustard is still being cut. Pulses, viz., *mug*, *khesari*, and *matar kalai*, ripening. Coarse rice is being sold at 13 seers 14 chittacks per rupee.
22	Chittagong „ 22, '90	Nil	Weather—seasonable. The state of winter crops good, but rain is wanted in the south, where weather is reported unsettled.
23	Noakholly „ 22, '90	Nil	Weather—getting warm; occasionally cloudy. Harvesting of *rubbi* crops and ploughing of land for *aus* commenced. Rain wanted in some places. Price of rice stationary.
24	Tipperah „ 22, '90	Nil	Weather—rather warm for this time of the year. *Chillies* being reaped. Other winter crops (pulses, &c.) thriving. Rice selling at from 14½ to 16 seers per rupee.
25	Chittagong Hill Tracts. „ 21, '90	Nil	Weather—cold in the morning throughout the week. Gathering of mustard continues; outturn estimated at about 6 annas. Tobacco and *chillies* doing well. *Jum* cutting has commenced in some places. Best and middle class rice selling at 12 seers 5 chittacks and 13 seers 14 chittacks per rupee respectively.
	Hill Tipperah „ 22, '90	Nil	Weather—getting warm. Sugarcane and tobacco still being cut. Mustard being gathered. *Jums* still being cleared in the hills.
BEHAR.			
26	Patna „ 22, '90	Nil	Weather days warm, but nights cool. Wheat and barley have not yet ripened. Other spring crops are being reaped. Collection of opium continues. Prospects favourable. Prices of food-grains almost stationary.
27	Gya „ 22, '90	Nil	Weather—getting warm in the day. *Rabbi* crops arriving to maturity. Mustard, *masuri*, and gram being reaped. Extraction of opium going on. Food-stocks sufficient.
28	Shahabad „ 22, '90	Nil	Weather—days hot, nights still cool. Pulses being gathered with fair outturn. Other *rubbi* crops promising Prospects of opium crop good. Prices of food-grains stationary.
29	Durbhunga „ 22, '90	Nil	Weather—days getting warm. Wheat, barley, and linseed approaching maturity; outturn estimated at 12 annas on an average. Poppy blossoming, and prospects continue good. Mustard being reaped. Mango trees are abundantly in flower. Common rice selling at 19½ seers per rupee.
30	Mozufferpur „ 22, '90	Nil	Weather—warmer with west wind. Condition and prospects of *rubbi* crops good. Outturn of mustard from 12 to 16 annas.
31	Sarun „ 22, '90	Nil	Weather—getting hot. *Rubbi* and poppy crops doing well, and give favourable prospect. Lands in churs are being prepared for paddy.
32	Chumparun „ 22, '90	Nil	Weather—bright and warm; occasionally stormy with high west wind. *Rubbi* ripening; reaping will commence in the next fortnight. Poppy well in flower and keeping healthy.
33	Monghyr „ 22 '90	Nil	Weather—seasonable. Harvesting of mustard and pulses going on Wheat and barley ripening. Indigo being sown in the Begusarai subdivision. Prices of food-grains almost stationary.
34	Bhagulpur „ 22, '90	Nil	Weather—getting warmer. It is now too late for rain to do good, and the *rubbi* crop must be a light one. Cereals on dearahs may yield 10 to 12 annas, but on high lands will be below 8 annas. Pulses very fair. Mango blossoms profuse.
35	Purneah „ 22, '90	Nil	Weather—days rather warm with west wind. Tobacco being gathered. All *rubbi* crops doing well. Ploughing going on.
36	Maldah „ 22, '90	Nil	Weather—days getting warmer, but nights still cool. Gathering of *kalai* and mustard over, except in one or two places. The outturn is expected to average about 12 annas, but from thanas Gumashtapur and Bholahat it is reported to be about 8 annas. Transplantation of *boro* paddy going on; in some places the plants are up. Prospects of other standing crops good, but damage is apprehended for want of rain. Common rice selling at an average of 18 seers per rupee.
37	Southal Perghs. „ 22, '90	Nil	Weather—becoming warmer. *Rubbi* crops doing well. *Boro* paddy being planted. Mango trees full of blossom.

	No.	District and date of return.	Rainfall at Sudder Station in inches.	Character of the weather and state and prospect of the crops.
ORISSA.				
Orissa Divn.	38	Cuttack Feb. 22, '90	Nil	Weather—fine. Tobacco doing well. General prospects ———
	39	Pooree „ 21, '90	Nil	Weather—seasonable. Threshing of winter crop (late *sarad*) still continues. *Dalua* crop has come up in places. Prices of rice stationary.
	40	Balasore „ 22, '90	Nil	Weather—warm for the time of year. *Rubbi* crops doing fairly well.
CHOTA NAGPORE.				
		South-West Frontier Agency.		
Chota Nagpore Divn.	41	Hazaribagh Feb. 22, '90	Nil	Weather—seasonable. Full *rubbi* crop expected except in Chowpárun. Poppy prospects favourable.
	42	Lohardugga „ 22, '90	Nil	Weather—days hot, mornings cool. Prospects of *rubbi* crops favourable at head-quarters. In Palamow, wheat tolerably developing; *musoor*, peas, and mustard being harvested; *rabar* greatly damaged by frost.
	43	Singbhoom „ 22, '90	Nil	Weather—warm. Pulses, oilseeds, and wheat all thriving Full crop expected Prices stationary.
	44	Manbhoom „ 22, '90	Nil	Weather—hotter. Spring crops doing well, except *arhar*, of which the outturn is estimated to be from 8 to 10 annas.

Published for general information.

CALCUTTA; REVENUE DEPT.,
The 25th February, 1890.

P. NOLAN,
Secy. to the Govt. of Bengal.

PRICES-CURRENT (*RETAIL*) OF FOOD-GRAINS, FIREWOOD AND SALT IN THE HEAD-QUARTER STATION BAZARS OF THE DISTRICTS OF BENGAL DURING THE FORTNIGHT ENDING THE 15TH FEBRUARY 1890.

PRICES-CURRENT (retail) of Food-grains, Firewood and Salt in the

QUANTITIES PER RUPEE IN

Number.	DISTRICTS.	WHEAT			BARLEY.			RICE, BEST SORT.			RICE, COMMON.			JOWAR OR CHOLUM. (*Sorghum Vulgare*).		
		Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.
	BENGAL.															
	Western Districts.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.
1	Burdwan	14 8	14 8	12 0		No sale.		14 4	12 12	15 0	17 1	16 14	18 0	...	...	...
2	Bankoora	14 8	14 8	12 8	14 0	14 0	15 0	17 8	17 8	17 8	21 4	21 0	20 0			
3	Beerbhoom ...	15 0	15 8	11 0	...	..	...	13 8	13 8	13 0	16 8	16 8	15 12	...	...	...
4	Midnapore	13 0	13 0	10 0	..	...	...	14 0	12 8	15 0	18 0	17 0	20 0	.	..	...
5	Hooghly	13 0	13 0	13 0	..	..	..	8 0	8 0	10 0	13 0	13 0	13 0	.		...
	Howrah ..	...	...		...	...	...	11 8	9 8	12 0	14 8	14 0	15 .2	.	..	...
	Central Districts.															
	Calcutta	13 9	13 12	12 6	17 2	18 0	14 14	9 1	9 2	9 7	13 15	13 14	14 12	21 0	20 3	16 0
6	24-Pergunnahs	14 8	15 0	13 4	16 0	16 0	16 0	9 0	9 0	8 0	17 0	16 8	16 8	...	...	...
7	Nuddea	15 0	15 0	14 0	17 12	17 12	17 12	10 10½	10 10½	13 5	12 14	12 14	17 1¼	.		..
8	Khoolna ...			...				14 0	13 0	16 0	16 0	16 0	18 0	..	.	..
9	Jessore	12 12	12 12	12 0				9 0	9 0	14 0	16 0	16 0	18 0	..		...
10	Moorshedabad	16 0	16 0	13 5	..		.	15 8	15 8	13 5	16 0	16 0	16 0	...		.
11	Dinagepore	17 6	16 0	12 0	20 0	19 0	10 0	15 8	14 0	13 8	19 9	19 0	17 0	...		...
12	Rajshahye .	16 8	15 12	13 8	22 8	18 12	26 4	15 0	14 4	14 4	16 2	16 2	15 15	.	.	...
13	Rungpore	13 5	14 8	12 4	.		...	9 6	9 6	10 8	14 8	14 8	16 0	...		.
14	Bogra .	Best. 12 0 / Common. 15 0	13 5 / 16 8	9 15	...	...	.	12 0	12 0	13 8	19 2	18 12	19 8	...	...	.
15	Pubna .	15 0	13 5	15 12				6 12	7 2	7 8	16 .4	16 8	18 0			...
16	Darjeeling	10 0	10 0	10 0	9 0	10 0	6 0	5 0	5 8	6 0	12 0	10 0	13 0	.	..	...
17	Julpigoree	13 0	13 0	10 0	16 0	16 0	16 0	8 0	8 0	8 0	18 0	17 0	.7 0	.		.
	Eastern Districts.															
18	Dacca .	13 0	13 0	15 8	16 0	16 0	20 0	14 0	14 0	15 0	16 0	16 0	17 0	...	...	...
19	Furreedpore .	12 0	12 0	16 0	14 0	12 0	20 0	10 0	10 0	9 0	14 0	14 0	16 0	.		...
20	Backergunge ...	.	.	..	.	...	...	12 13	13 5	13 8	15 0	16 0	16 0	..	.	...
21	Mymensingh	10 0	11 8	10 0	.	..	.	8 0	10 8	13 0	14 0	14 0	18 0	..	...	...

A In subdivisions retail prices of salt per rupee are :—Cuima 10 seers, Cutwa 10 seers 6 chittacks, and Raneegunge 10 seers.
B At Ramporo Haut retail price of salt 10 seers per rupee.
C In subdivisions retail prices of salt per rupee are :—Ghattal 10½ seers, Tumlook 8 seers, and Contai 9 seers.
D In subdivisions retail prices of salt per rupee are :—Serampore 10 seers and Jehanabad 10 seers.
E In subdivisions retail prices of salt per rupee are :—Baruset 9 seers, Basirhat 9 seers, Diamond Harbour (at Magrahat) 10 seers, Barrackpore 9 seers 2 chittacks, and Dum-Dum 10 seers.
F In subdivisions retail prices of salt per rupee are :—Kooshtea 10 seers, Meherpore 10½ seers, Chooadanga 9 seers, and Ranaghat 9 seers 2 chittacks.
G In subdivisions retail prices of salt per rupee are :—Satkhira 9 seers and Bagirhat 8 seers.
H In subdivisions retail prices of salt per rupee are : —Jhenida 9 seers, Magura 9½ seers, Narail 9½ seers, and Bongong 10 seers.
I In subdivisions retail prices of salt per rupee are : —Lalbagh 10½ seers and Kandi 1 ¼ seers.

Districts of Bengal on the 15th February 1890.

SEERS OF 80 TOLAHS.

BAJRA OR CUMBU. (*Pennisetum typhoideum.*)			MARUA OR RAGI. (*Eleusine Coracana.*)		
Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.

FIREWOOD.		SALT.			WHOLESALE PRICES PER MAUND OF 40 SEERS. SALT.			DISTRICTS.
Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	
S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
								BENGAL.
								Western Districts.
100 0	107 0	A 10 0	10 0	10 7¼	3 11 0	3 11 0	3 11 0	Burdwan.
28 0	28 0	10 0	10 0	10 0	3 15 0	3 15 0	3 14 0	Bankoora.
160 0	...	B 10 8	10 8	10 0	3 10 0	3 10 0	3 13 0	Beerbhoom.
160 0	160 0	C 10 3	10 3	10 4	3 15 0	3 15 0	3 14 0	Midnapore.
120 0	120 0	D 9 0	9 0	9 0	3 11 6	3 11 6	4 6 0	Hooghly.
100	100 0	10 0	10 0	10 8	3 13 0	3 13 6	3 11 0	Howrah.
								Central Districts.
100 0	100 0	10 2	10 2	10 5	3 11 0	3 11 6	3 9 7	Calcutta.
100 0	100 0	E 10 0	10 0	10 0	3 9 6	3 9 6	3 10 0	24-Pergunnahs
...	...	F 9 2	9 2	9 2	3 14 0	3 14 0	3 14 0	Nuddea.
160 0	160 0	G 9 8	8 0	9 2¼	4 4 0	4 4 0	4 0 0	Khoolna.
160 0	160 0	H 9 2	9 3	9 2	4 0 0	4 0 0	4 0 0	Jessore.
200 0	200 0	I 10 12	11 0	10 0	3 12 0	3 12 0	4 0 0	Moorshedabad.
160 0	160 0	J 9 8	9 8	9 8	4 0 0	4 0 0	4 0 0	Dinagepore.
240 0	240 0	K 9 0	9 0	9 9	4 2 8	4 2 8	4 0 0	Rajshahye.
100 0	120 0	L 8 14	8 14	9 6	4 8 0	4 8 0	4 4 0	Rungpore.
90 0	96 0	9 0	9 0	8 4	4 4 0	4 1 0	5 0 0	Bogra.
200 0	200 0	M 8 11½	8 11½	9 9	4 0 0	4 0 0	3 15 0	Pubna.
120 0	120 0	8 0	8 0	8 0	N 5 0 0	5 0 0	5 0 0	Darjeeling.
128 0	128 0	O 9 0	9 0	9 0	4 2 0	4 2 0	4 4 0	Julpigoree.
								Eastern Districts.
160 0	120 0	P 9 8	9 4	9 14	4 2 0	4 4 0	4 0 0	Dacca.
120 0	120 0	9 0	9 0	10 0	4 4 0	4 4 0	3 14 0	Furreedpore
120 0	120 0	Q 10 5	10 10	10 10	3 14 0	3 14 0	3 12 0	Backergunge.
		R 9 0	9 4	9 10	4 4 0	4 2 0	4 2 0	Mymensingh.

f salt 8 seers per rupee.
pee are:—Nattore 9 seers and Nowgong 8 seers 11 chittacks.
pee are:—Nilphamari 9 seers, Kurigram 9 seers, and Gaibanda 8 seers.
per rupee.
per maund.
etail price of salt 8 seers per rupee.
pee are:—Manickgunge 8 seers, Moonsheegunge 8 seers 14 chittacks, and Naraingunge

ipee are:—Patuakhali 9 seers, Bhola 8 seers, and Perozepore 9 seers.

R In subdivisions retail prices of salt per rupee are:—Kishoregunge 8 seers, Jamalpore 10 seers, Sherpore 8 seers, and Netrokona 8 seers.

PRICES-CURRENT (retail) of Food-grains, Firewood

Number.	DISTRICTS	WHEAT. Present return.	WHEAT. Next preceding return.	WHEAT. Corresponding return of last year.	BARLEY. Present return.	BARLEY. Next preceding return.	BARLEY. Corresponding return of last year.	RICE, BEST SORT. Present return.	RICE, BEST SORT. Next preceding return.	KANGNI OR KAKUN, ITALIAN MILLET. (*Setaria italica.*) Present return.	KANGNI OR KAKUN, ITALIAN MILLET. (*Setaria italica.*) Next preceding return.	KANGNI OR KAKUN, ITALIAN MILLET. (*Setaria italica.*) Corresponding return of last year.	GRAM, CHANA, CHHOLA, KADALAY OR SUNAGA. (*Cicer arietinum.*) Present return.	GRAM, CHANA, CHHOLA, KADALAY OR SUNAGA. (*Cicer arietinum.*) Next preceding return	GRAM, CHANA, CHHOLA, KADALAY OR SUNAGA. (*Cicer arietinum.*) Corresponding return of last year.
	***Eastern Districts*—concluded.**	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.
22	Chittagong ..	11 0	11 0	11 0	.			12 0	11 0	.	...	..	13 0	12 0	11 0
23	Noakholly ...	...	.	...		...	..	15 0	16 0	...	...	.	12 0	10 0	12 0
24	Tipperah ...	12 5	11 7	12 8				10 0	10 0	..	....	..	13 5	Gobindabhag. 16 14	16 0
25	Chittagong Hill Tracts		..					12 4	2 4	..	..	...	..	...	...
	Hill Tipperah ..	6 0	6 0	6 0				9 0	8 0	...	..	.	12 0	12 0	10 0
	BEHAR.														
26	Patna ...	7 8 / 15 8	Red. 17 8 / White. 15 8	18 0	.		23 0	24 0	22 0	10 8	10 8	1	22 0	19 0	15 8
27	Gya ...	15 0	16 0	14 0	23 0	23 0	18 0	10 8	10 8	1	15 0	15 0	13 0	24 0	23 0	19 8
28	Shahabad ...	16 0	16 0	15 8	24 0	23 0	20 0	9 0	9 0		...	...	...	20 0	21 0	20 0
29	Durbhunga ...	14 4	13 3	16 0	27 8	27 8	18 0	11 0	9 14	1	...	...	...	28 8	20 0	18 12
30	Mozufforpore	14 0	14 0	12 0	20 0	20 0	.	9 0	9 0		...	...	...	18 0	18 8	16 0
31	Sarun ...	15 8	15 8	15 0		21 0	21 8	9 0	9 4		16 0	16 0	15 0	20 4	20 8	17 12
32	Chumparun ..	12 0	13 0	13 0	21 0	.	18 0	8 0	10 0		...	...	...	23 0	23 0	15 0
33	Monghyr ...	17 14	18 10	15 0	21 0	21 0	..	16 12	16 12		16 12	16 12	10 8	21 0	21 0	18 9
34	Bhagulpore ...	16 6	16 6	15 2	20 3	20 3	17 0	Old. 11 6 / New. 15 2	11 6		...	...	...	20 3	20 3	16 11
35	Purneah ...	18 0	18 0	13 0	...	...	...	17 0	18 0		...	...	...	18 0	16 0	13 0
36	Maldah ..	18 0	16 0	13 0	..	.		11 0	8 0		...	...	...	16 0	13 0	15 0
37	Sonthal Perghs.	13 0	13 0	11 0				13 0	12 0		...	...	...	17 0	16 0	14 0
	ORISSA														
38	Cuttack ...	13 2	11 13	13 2				...	10 8	10 8	...		...	14 7	15 12	19 11
39	Pooree ...	13 2	13 2	13 2	...	.		17 1	15 12		...	...	...	17 1	Kalai. 17 1	17 1
40	Balasore ...	15 0	15 0	13 0	13 6	13 0	13 0	13 0	13 0		.	.	...	14 0	14 0	12 8
	CHOTA NAGPORE														
	South-West Frontier Agency.														
41	Hazaribagh ...	13 0	13 8	13 0	15 0	15 0	...	10 0	10 0		...	...	...	16 0	16 0	15 0
42	Lohardugga ...	10 8 / 12 8	White. 11 12 / Red. 13 12	13 0	3 0	.	...	15 0	17 0		...	...	...	12 8	14 12	13 0
43	Singbhoom ...	10 0	10 0	10 0	12 0	15 0	14 0	16 0	16 0		...	...	...	10 0	10 0	12 0
44	Manbhoom	13 5	13 5	13 5	..	.	...	15 0	14 0		...	..	...	16 0	15 12	14 0

S At Penny Hât retail price of salt 8 seers per rupee.
T In subdivisions retail prices of salt per rupee are :—Buxar 10½ seers, Sassera
U At Samastapor in the Tajpore subdivision retail price of salt 11 seers per ru
V In subdivisions retail prices of salt per rupee are :—Hajipore 9¾ seers and Sit
W At Bettiah retail price of salt 9¾ seers per rupee.

CALCUTTA,
The 25th February, 1890.

Station Bazars of the Districts of Bengal on the 15th February 1890—(concluded).

INDIAN-CORN OR MAIZE (*Zea Mays.*)			ARHAR OR THUR. CADJAN PEA. (*Cajanus indicus.*)			FIREWOOD.			SALT.			WHOLESALE PRICES PER MAUND OF 40 SEERS. SALT.			DISTRICTS.
Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return	Next preceding return.	Corresponding return of last year.	
															Eastern Districts—concluded.
S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	S. Ch.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
...	...	...	...	...	...	110 0	110 0	108 0	9 0	9 0	9 8	4 4 0	4 0 0	4 0 0	Chittagong.
...	...		8 0	7 0	...		...	...	S 9 0	9 0	8 0	4 0 0	4 0 0	4 8 0	Noakholly.
...	...	...	8 6¼	8 6¼	9 0	.	.	...	8 11	8 14	8 0	4 8 0	4 8 0	4 6 0	Tipperah.
...	...	..	.	.	...	320 0	320 0	320 0	8 0	8 0	8 0	4 8 0	4 8 0	4 8 0	Chittagong Hill Tracts.
...	...	...	8 0	8 0	8 0	...	...	...	8 0	8 0	8 0	4 6 0	4 6 0	4 6 0	Hill Tipperah.
															BEHAR.
23 0	22 8	21 8	21 0	21 8	24 0	130 0	130 0	130 0	10 0	10 0	10 0	3 13 6	3 14 0	3 12 6	Patna.
...	...	...	20 0	19 0	18 0	160 0	160 0	200 0	9 2	9 2	8 12	4 2 0	4 2 0	4 2 9	Gya.
...	...	...	19 0	19 0	14 0	160 0	140 0	160 0	T 10 0	9 12	10 0	3 15 0	3 15 6	4 0 0	Shahabad.
23 0	24 3	18 0	17 9	16 8	21 0	200 0	200 0	176 0	U 10 4	10 0	11 0	3 11 0	3 12 0	3 10 3	Durbhunga.
26 0	26 0	17 0	18 0	18 0	20 0	160 0	160 0	160 0	V 10 0	10 0	10 0	4 0 0	4 0 0	3 12 0	Mozufferpore.
23 0	21 12	20 12	19 8	19 8	20 12	160 0	160 0	160 0	10 0	9 8	10 0	4 0 0	4 0 0	3 15 0	Sarun.
24 0	24 8	18 0	17 0	17 8	22 0	160 0	160 0	160 0	W 10 0	10 0	9 8	4 1 0	4 1 0	4 1 0	Chumparun.
28 0	22 1	16 4	16 12	16 12	17 5	147 0	47	147 0	X 9 11	9 11	9 8	4 0 0	4 0 0	4 0 0	Monghyr.
22 6	22 11	17 0	16 6	17 11	17 0	176 12	164 0	176 8	10 1	10 1	...	3 15 6	3 15 6	4 0 0	Bhagulpore.
...	...	...	16 0	16 0	16 0	130 0	120 0	200 0	Y 9 0	9 0	9 0	4 7 0	4 7 0	4 5 0	Purneah.
...	...	...	...		.	120 0	60 0	120 0	9 0	9 0	10 0	4 2 0	4 4 0	4 0 0	Maldah.
25 0	25 0	19 0	20 0	20 0	23 0	200 0	200 0	200 0	9 0	9 0	9 0	4 0 0	4 0 0	4 3 0	Sonthal Perghs.
															ORISSA.
...	...	...	14 7	14 7	17 1	80 0	80 0	80 0	11 0	11 0	11 0	3 12 0	3 12 0	3 12 0	Cuttack.
...	...	..	15 12	15 12	15 12	80 0	80 0	80 0	Z 11 13	11 13	11 13	3 6 0	3 6 0	3 6 0	Pooree.
...	...	...	...	...	...	160 0	160 0	160 0	Z1 10 0	10 0	8 8	3 14 0	3 14 0	4 4 0	Balasore.
															CHOTA NAGPORE.
															South-West Frontier Agency.
21 0	21 0	18 0	16 0	17 0	16 0	320 0	320 0	320 0	8 0	8 0	8 0	4 6 0	4 6 0	4 4 0	Hazaribagh.
32 0	30 0	16 0	Small. 19 12	17 0	15 0	120 0	140 0	140 0	8 8	8 8	8 8	4 5 0	4 6 0	4 8 0	Lohardugga.
20 0	24 0	...	12 0	12 0	15 0	240 0	240 0	200 0	8 8	8 8	8 0	4 12 0	4 12 9	5 0	Singhbhoom.
32 0	32 0	26 0	20 0	20 0	16 0	00 0	200 0	200 0	Z2 9 2	9 2	9 0	4 2 0	4 2 6	4 2 0	Manbhoom.

X In subdivisions retail prices of salt per rupee are: Begusarai 9¼ seers and Jamui 9 seers.
Y At Kishengunge retail price of salt 8 seers per rupee.
Z In the Khoordah subdivision retail price of salt 11 seers per rupee.
Z1 At Bhudruck retail price of salt 9 seers per rupee.
Z2 At Govindpore retail price of salt 9 seers per rupee.

Published for general information.

P. NOLAN,
Secy. to the Govt. of Bengal.

PRICES-CURRENT (wholesale) of Food-grains, Firewood, and Salt

Number.	MARTS.	WHEAT.			BARLEY.			RICE, BEST SORT.			RICE, COMMON.		
		Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.
		R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.
1	Calcutta ...	2 10 11	2 10 9	2 15 0	2 1 8	1 15 11	2 7 0	4 2 7	4 2 7	3 15 4	2 10 3	2 10 1	2 7 8
2	Serajgunge ...	2 2 0	2 4 0	2 10 0	...	...	...	4 10 0	5 8 0	3 14 0	2 12 0	2 10 0	2 10 0
3	Dacca ...	3 0 0	3 0 0	2 8 0	2 7 0	2 7 0	2 0 0	2 13 0	2 14 0	2 10 0	2 7 0	2 7 0	2 5 0
4	Naraingunge	...	...	...	...	...	...	2 12 0	3 0 0	2 6 0	2 8 0	2 12 0	2 4 0
5	Chittagong ...	3 8	3 8 0	3 9 0	...	...	...	3 4 0	3 8 0	3 4 0	2 8 6	2 9 0	2 10 0
6	Patna ...	Red. 2 4 0 / White. 2 8 0	Red. 2 4 0 / White. 2 8 0	... / 2 2 0	1 10 6	1 10 0	1 12 0	3 12 0	3 12 0	3 8 0	2 1 0	2 1 0	2 7 0
7	Balasore ...	2 8 0	2 8 0	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0	3 4 0	2 0 0	2 0 0	1 12 0
8	Pooree ...	...	...	...	...	...	...	...	...	...	1 12 0	1 12 0	2 2 6
9	Cuttack ...	3 0 0	3 4 0	3 0 0	...	...	...	3 10 0	3 0 0	3 4 0	1 11 0	1 14 0	2 0 0

CALCUTTA,
The 25th February, 1890.

engal on the 15th February 1890.

PRICES PER MAUND

...RAH OR CHOLUM. (...holcus Vulgare.)			BAJRA OR CUMBU. (Pennisetum typhoideum.)		
...ceding return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.
R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.
0 7	1 11 0	2 4 0	2 4 6	3 6 7	2 10 7
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
3 6	1 12 0	1 10 0	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...

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...IZE.	ARHAR OR THUR. CAJAN PEA. (*Cajanus indicus.*)			FIREWOOD.			SALT.			MARTS.
...corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	Present return.	Next preceding return.	Corresponding return of last year.	
A P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	
4 0	1 15 11	1 15 10	2 2 8	0 5 6	0 5 6	0 5 9	3 11 0	3 11 0	3 9 7	Calcutta.
...	...	...	...	...	...	...	3 12 0	4 0 0	3 12 0	Serajgunge.
..	2 12 0	2 12 0	2 8 0	0 4 0	0 4 0	0 5 0	4 2 0	4 4 0	4 0 0	Dacca.
..	3 2 0	3 4 0	3 2 0	0 8 0	0 8 0	0 10 0	3 12 0	3 12 0	3 12 0	Narainguage.
..	...	...	...	0 6 0	0 6 0	0 5 0	4 4 0	4 0 0	4 0 0	Chittagong.
2 6	1 13 6	1 13 0	1 10 0	0 5 0	0 5 0	0 5 0	3 13 6	3 14 0	3 12 6	Patna.
..	...	...	...	0 4 6	0 4 6	0 4 6	3 14 0	3 14 0	4 4 0	Balasore.
..	...	..	...	...	...	...	3 6 0	3 6 0	3 6 0	Pooree.
..	2 12 0	2 12 0	2 0 0	0 8 0	0 8 0	0 8 0	3 12 0	3 12 0	3 12 0	Cuttack.

Published for general information.

P. NOLAN,
Secy. to the Govt. of Bengal.

Meteorological Report of the Province of Benga

STATION OBSERVATIONS.

Meteorological Division.	District.	Representative station.	Air pressure. Mean barometric height, 8 A.M.	Air pressure. Mean reduced to sea-level.	Air pressure. Variation from mean.	Wind. Prevailing direction.	Wind. Mean wind velocity.	Temperature. Highest during week.	Temperature. Date.	Temperature. Lowest during week.	Temperature. Date.	Temperature. Mean maximum temperature.	Temperature. Mean minimum temperature of week.	Temperature. Mean daily temperature of week.	Temperature. Variation from normal mean of week.	Mean 8 A.M. temperature
Orissa.	Pooree	Pooree ...	29·898	29·911	—	SW	175	86·2	19th Feb.	?	?	84·6	?	?	?	75·
		Gopalpore	29·887	29·949	—·093	NW	291	84·2	19th ,,	65·9	15th Feb.	82·8	71·2	77 0	+6·9	76·
		False Point ...	29·891	29 913	—·117	W	237	86·4	20th ,,	61 0	19th ,,	84·5	69 9	75 7	+1·8	75·
	Cuttack	Cuttack ...	29·844	29·927	—·006	Calm	35·7	95·9	18th, 21st Feb.	62·8	15th ,,	93·5	66·9	80·4	+2·4	71
	Balasore	Balasore ...	29·850	29·911	—·120	North-easterly.	65·2	94·4	18th ,,	61·6	19th ,,	90·8	65·0	77·9	+5·0	69
South-West Bengal.	South-West Midnapore / South 24-Pergunnahs	Saugor Island	29·888	29 915	—·109	Variable	274	86 2	20th ,,	65·4	18th ,,	85·0	69 8	76 4	+2 8	7·
	Midnapore	Midnapore ..	29 762	29 918	—·127	Variable	65·3	95·3	18th ,,	61·2	15th, 19th Feb.	92·0	63 6	77 8	+5·6	69·
	24-Pergunnahs ... ... / Howrah ... ... / Hooghly	Calcutta	29 889	29·911	—·118	Calm	93	88 5	18th ,,	59 3	19th ,,	85·4	64·6	75·0	+3·9	69·
	Burdwan	Burdwan	29·804	29 908	— 124	Westerly	38 3	92·0	18th, 19th Feb.	57 9	19th ,,	90 0	61 8	75 9	+5 3	66
	Bankoora	Bankoora ...	29·584	29·897	—·114	Calm	55·0	92·7	18th ,,	57·8	15th ,,	90·0	61·7	75 8	+5 1	68·
	Beerbhoom ... ... / West Burdwan	Ranegunge	29·577	29 924	—·11	NW	53·4	93·5	18th ,,	57·9	15th ,,	90·4	60·9	75 6	+5 4	66·
	Moorshedabad	Berhampore...	29·837	29·908	— 124	NW	48·5	91·1	18th ,,	55·7	16th ,,	87·2	58 7	73 0	+4·0	64·
	Nuddea	Krishnaghur...	29·865	29·933	—·091	WSW	87·1	90·9	18th ,,	51·5	15th ,,	88·3	58·4	73·3	+5·0	68
	Jessore ... ... / Khoolna	Jessore ...	29·871	29 906	—·118	Calm	49·2	89·7	18th ,,	59·5	19th ,,	86 3	63 7	75 0	+5·4	67·
East Bengal.	Chittagong	Chittagong	29 842	29·935	— ·038	Westerly	66·6	89 1	21st ,,	58·6	15th, 16th Feb.	84 5	62 1	73 3	+3 0	67
	Chittagong Hill Tracts	Demagiri ..	Observations not received													
	Backergunge	Barrisal ..	29 904	29·917	—·088	Calm	69·7	86·8	18th Feb.	51·6	15th ,,	84 2	63 6	75·9	+4 0	69·
	Noakholly	Noakholly ...	29·889	29·953	—	Variable	82·5	87·0	21st ,,	55·8	15th ,,	85·0	62·5	73 8	—	71·
	Furreedpore	Furreedpore...	29·873	29·915	— 111	SW	64·7	85 .	18th & 21st Feb.	57·0	19th ,,	84 7	61 8	73 2	+5 4	66·
	Dacca	Dacca ...	29·876	29 899	—·124	SSW	88·9	89·1	18th ,,	58 8	19th ,,	86·5	62 5	74 5	+4 6	69·
	Tipperah	Commillah ..	29·886	29·923	—·095	S	64·3	86·9	21st ,,	57·0	15th ,,	84·9	62 8	73·8	+4 5	68·
	Mymensingh	Mymensingh	29·847	29 908	— 121	Easterly	61 2	84 0	21st ,,	56 1	19th ,,	82 8	59 9	71·3	+4 2	66
North Bengal.	Bogra	Bogra	29·872	29·879	—·119	Calm	48·6	88·3	18th ,,	55·1	16th ,,	86 2	56 8	71 5	+4·5	61·
	Pubna	Serajgunge ..	29·941	29·899	— 125	WSW	24·7	87·9	18th ,,	52 9	19th ,,	86·0	56·1	71 1	+4·5	64
	Rajshahye	Rampore Boalieah.	29·826	29·899	— 104	Variable	57·0	88·3	18th ,,	54·5	16th ,,	85 4	58 5	71 9	+5 7	65
	Maldah	Maldah ...	29·854	29·919	—	NW	56 6	88 6	21st ,,	51·2	16th ,,	80 6	58 8	69 2	—	65·
	Dinagepore	Dinagepore ..	29 761	29 891	— 142	SW	59 6	87 1	18th ,,	50 2	16th ,,	85 2	53 5	69 4	+3 7	59·
	Rungpore	Rungpore ...	29·778	29 909	—·126	Calm	20 6	85 4	18th ,,	49·8	16th ,,	83·7	55·0	69 3	+4·0	61
	Julpigoree ... ... / Cooch Behar	Julpigoree ...	29·596	29 898	—·131	N	65·7	82·9	19th ,,	49 9	19th ,,	76·4	55 3	64·9	+1·7	60
	Darjeeling Hill Tracts ...	Darjeeling .	22·896	—	—	WSW	141·0	54 6	19th, 20th Feb.	38·5	21st ,,	55·2	39·9	46·6	4	4
North Behar.	Purneah ... ... / North Bhagulpore ...	Purneah .	29·765	29·898	—·124	Calm	94 4	84 7	20th, 21st Feb.	49·0	16th ,,	83 .	51 7	67 5	+2·3	59
	Mozufferpore	Mozufferpore	Observations suspended.													
	Durbhunga	Durbhunga ...	29·732	29 908	—·122	WSW	94·1	85·4	18th Feb.	?	?	83 2	?	?	?	60
	Chumparun	Motihari	29·659	29·901	— 109	Variable	183·0	84·2	21st ,,	48·9	15th, 19th Feb.	81·8	50·8	66·3	+3·0	56
	Sarun	Chupra	Observations incomplete.													
South Behar.	Shahabad	Dehree / Buxer / Arrah	29·672 / 29·700	29 927 / 29 914	—·114 / —·100	WSW / SW	113 0 / 104·7	88 4 / 86·7	17th ,, / 21st ,,	Ditto. 53·4 / 52·9	15, 18 ,, / 15th ,,	85 5 / 85 9	56·3 / 54 9	70·9 / 70·0	+5·7 / +5·1	62 / 61
	Gya	Gya	29·534	29 930	—·107	S	99 0	91·2	17th ,,	56·2	16th ,,	87 0	49·0	73 5	+4 5	65
	Patna ...	Bankipore	29·716	29 909	—·131	SW	69·0	85·1	17th, 18th Feb.	54·2	15th, 16th Feb.	8 2	56·6	70 4	+5·1	64
	South Bhagulpore .. / Monghyr	Bhagulpore ...	29·720	29·889	—·120	Calm	18 0	88 7	18th ,,	52 5	16th ,,	80·7	55 6	71 2	+5·3	64·
	Sonthal Pergunnah ..	Deoghur ..	29·394	29 915	—	NW	65·0	90·8	18th ,,	53·1	16th ,,	87·3	57 1	72·2	—	65·
Chutia Nagpur.	Hazaribagh	Hazaribagh	27·875	29 936	—·093	W	187·4	88 0	17th ,,	56·3	18th ,,	83 0	59 3	71 4	+5·5	66
	Lohurdugga ... ... / Manbhoom	Ranchee ..	27 715	29 924	—·092	Calm	130 4	87·1	17th ,,	56·4	15th & 19th Feb.	84·3	58·5	71·4	+4·0	65
	Singbhoom	Chyebassa ...	29·138	29·930	—	Southerly	30·0	93·4	21st ,,	57·2	16th ,,	90·7	61·2	76·0	—	6

Explanation.—Summary.—The normal means of air pressure and temperature are the arithmetical average or means of the reading during the same period for the l
The *humidity* of the atmosphere is expressed at percentage, saturated air being presented by 100. A clear sky is denoted by 0 and an overcast sky by 10. The numb
are the numerical means or average of the rainfall in that district determined from the returns sent in by the subdivisional station for the period in question during the p
stations in the district sending in returns divided by the number of stations. A rainy day is one on which at least hundredth or an inch fell.

for the week ending Friday, the 21st of February 1890.

Average humidity at 8 A.M.	Average cloud amount at 8 A.M. for week.	Rainfall of week at observing station.	OF WEEK. Mean for district.	OF WEEK. Normal mean.	DISTRICT OBSERVATIONS. RAINFALL. Since 1st of month. Mean for district.	Since 1st of month. Normal mean.	Since 1st of month. Variation.	Since 15th May 1889. Mean for district.	Since 15th May 1889. Normal mean.	Since 15th May 1889. Variation.	Average number of rainy days.	Normal number of rainy days.	Representative station.	District.	Meteorological Division.
83	1·0	Nil	Nil	0·31	Nil	0·69	−0·69	71·94	56·32	+15·62	0·0	0·4	Pooree	Pooree	Orissa.
73	0	Nil											Gopalpore		
90	3·1	Nil											False Point		
70	2·4	Nil	Nil	0·30	Nil	0·73	−0·73	66·30	62·71	+13·68	0·0	0·4	Cuttack	Cuttack	
80	0	Nil	Nil	0·23	Nil	0·82	−0·82	49·96	54·13	−4·17	0·0	0·4	Balasore	Balasore	
88	0·6	Nil	Nil	0·18	Nil	1·10	−1·10	58·57	63·47	−4·90	0·0	0·4	Saugor Island	South-West Midnapore	South-West Bengal.
73	0	Nil	Nil	0·21	Nil	0·81	−0·81	46·39	52·38	−5·99	0·0	0·5	Midnapore	South 24-Pergunnahs	
85	0·6	Nil	Nil	0·30	Nil	1·10	−1·10	54·10	52·76	+1·34	0·0	0·5	Calcutta	Midnapore	
75	1·4	Nil	Nil	0·22	Nil	0·89	−0·89	43·89	47·60	−3·71	0·0	0·4	Burdwan	24-Pergunnahs	
56	0	Nil	Nil	0·21	Nil	0·63	−0·63	55·93	52·91	+3·02	0·0	0·3	Bankoora	Howrah	
59	0	Nil	Nil	0·28	Nil	0·91	−0·91	52·46	52·53	−0·07	0·0	0·5	Ruteegunge	Hooghly	
64	0	Nil	Nil	0·26	Nil	0·74	−0·74	51·17	51·29	−0·12	0·0	0·4	Berhampore	Burdwan	
73	0·1	Nil	Nil	0·30	Nil	0·92	−0·92	51·61	50·06	+1·55	0·0	0·4	Krishnaghur	Beerbhoom	
91	1·7	Nil	Nil	0·27	Nil	0·92	−0·92	54·75	54·14	+0·61	0·0	0·6	Jessore	West Burdwan ...	
82	3·1	Nil	Nil	0·19	Nil	0·60	−0·60	100·35	114·38	−14·03	0·0	0·4	Chittagong	Moorshedabad ...	
			Nil	0·26	Nil	0·74	−0·74	67·17	82·34	−17·17	0·0	0·4	Dumagiri	Nuddea	East Bengal.
92	1·6	Nil	Nil	0·28	Nil	0·99	−0·99	78·41	77·91	+0·50	0·0	0·4	Barrisal	Jessore	
84	0	Nil	Nil	0·25	Nil	0·89	−0·89	93·82	108·00	−14·18	0·0	0·4	Noakholly	Khoolna	
89	1·4	Nil	Nil	0·37	Nil	0·98	−0·98	67·22	56·70	+10·52	0·0	0·5	Furreedpore	Chittagong	
86	1·1	Nil	Nil	0·32	Nil	1·01	−1·01	76·19	60·61	+15·58	0·0	0·5	Dacca	Chittagong Hill Tracts	
87	2·4		Nil	0·23	Nil	0·88	−0·88	57·62	70·19	−12·57	0·0	0·5	Sonmollah	Backergunge	
85	1·7	Nil	Nil	0·20	Nil	0·83	−0·83	88·78	68·14	+20·64	0·0	0·4	Mymensingh	Noakholly	
81	0	Nil	Nil	0·30	Nil	0·77	−0·77	65·62	58·00	+7·62	0·0	0·5	Bogra	Furreedpore	
84	0	Nil	Nil	0·26	Nil	0·98	−0·98	55·37	54·33	+1·04	0·0	0·5	Serajgunge	Dacca	
74	0·1	Nil	Nil	0·25	Nil	0·69	−0·69	54·35	54·57	−0·22	0·0	0·4	Rampore Beauleah	Tipperah	
64	0	Nil	Nil	0·23	Nil	0·58	−0·58	39·76	54·80	−15·04	0·0	0·4	Maldah	Mymensingh	
76	0·1	Nil	Nil	0·20	Nil	0·47	−0·47	57·49	57·87	−0·38	0·0	0·4	Dinagepore	Bogra	North Bengal.
81	0	Nil	Nil	0·15	Nil	0·41	−0·41	85·87	74·24	+11·63	0·0	0·4	Rungpore	Pubna	
85	0	Nil	Nil	0·18	Nil	0·37	−0·37	117·73	111·62	+6·11	0·0	0·5	Julpigoree	Rajshahye	
83	0·6	Nil	Nil	0·23	Nil	0·54	−0·54	133·46	121·91	+11·55	0·0	0·5	Darjeeling	Maldah	
69	0·1	Nil	Nil	0·11	Nil	0·48	−0·48	75·00	59·16	+15·84	0·0	0·4	Purneah	Dinagepore	
			Nil	0·07	Nil	0·36	−0·36	48·83	43·90	+4·93	0·0	0·3	Mozufferpore	Rungpore	North Behar.
66	0·3	Nil	Nil	0·09	Nil	0·49	−0·49	52·11	45·12	+6·99	0·0	0·3	Durbhunga	Julpigoree	
76	1·7	Nil	Nil	0·08	Nil	0·37	−0·37	63·96	47·16	+16·80	0·0	0·3	Motihari	Cooch Behar	
			Nil	0·16	Nil	0·40	−0·40	40·13	43·38	−3·25	0·0	0·3	Chupra	Darjeeling Hill Tracts	
53	1·0	Nil	Nil	0·10	Nil	0·37	−0·37	40·07	40·45	−0·38	0·0	0·2	Sarun	Purneah	
59	1·3	Nil											Dehree	North Bhagulpore ...	
													Buxar		
87	2·1	Nil	Nil	0·11	Nil	0·39	−0·39	37·07	42·01	−4·94	0·0	0·3	Arrah	Mozufferpore	South Behar.
52	1·0	Nil	Nil	0·10	Nil	0·44	−0·44	43·49	41·76	+1·73	0·0	0·3	Shahabad	Durbhunga	
54	0·3	Nil	Nil	0·19	Nil	0·19	−0·49	42·43	43·66	−1·23	0·0	0·4	Gya	Motihari	
57	0	Nil	Nil	0·11	Nil	0·44	−0·44	54·75	51·23	+2·52	0·0	0·3	Bankipore	Chumparun	
39	1·1	Nil	Nil	0·16	Nil	0·53	−0·53	43·03	50·99	−7·96	0·0	0·3	Bhagulpore	Sarun	
55	0·0	Nil	Nil	0·17	Nil	0·63	−0·63	44·34	49·76	−5·42	0·0	0·4	Gya	Gya	
			Nil	0·16	Nil	0·86	−0·86	38·36	47·78	−0·42	0·0	0·4	Hazaribagh	Patna	
63	0	Nil	Nil	0·22	Nil	0·80	−0·80	48·76	52·38	−3·62	0·0	0·5	Ranchi	South Bhagulpore ...	
													Chyebassa	Monghyr	
														Sonthal Pergunnahs...	
														Hazaribagh	Chutia Nagpur.
														Lohardugga	
														Manbhoom	
														Singbhoom	

ten years. Th variations are *negative* when the mean for the week is less than the corresponding normal mean, and *positive* when greater.
denoting cloud amount represents the part of the sky covered, the whole sky being denoted by 10. Under the head District observations of rainfall the normal means
17 years. The means of the district are the numerical average of the rainfall return received in the district, *i.e.*, from total rainfall at

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 21st of February 1890.

Meteorological division.	District.	Station.	Rainfall. Saturday, 15th February.	Sunday, 16th February.	Monday, 17th February.	Tuesday, 18th February.	Wednesday, 19th February.	Thursday, 20th February.	Friday, 21st February.	Total number of rainy days.	Total rainfall of week.	Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 16th May 1889.	Average rainfall from 16th May to date.
ORISSA ...	Pooree ...	Pooree ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·51	80·71	52·13
		Khurdah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·52	76·57	57·02
		Banpur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·74	65·0	49·74
		False Point ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·71	77·00	64·59
		Gop ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
		Pipli ...											?		?
	Cuttack ...	Jagatsingpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·55	74·49	47·03
		Banki ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·57	52·48	50·17
		Cuttack ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·70	75·18	57·05
		Kendrapara ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·71	72·24	53·93
		Jajpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·00	57·64	54·45
		Dharmsala ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	59·25	?
		Salipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	72·47	?
	Balasore ...	Chandbali ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·92	55·04	53·39
		Bhuddruck ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·92	57·66	52·83
		Sorah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·58	46·05	51·70
		Balasore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·18	48·01	50·07
		Jellasore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·64	39·59	54·86
		Baripodah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·86	54·79	54·43
SOUTH-WEST BENGAL.	Midnapore ...	Contai ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·02	55·18	62·29
		Sangor Island ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·03	50·74	08·13
		Tumlook ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·00	49·00	52·10
		Midnapore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·78	46·26	49·60
		Ghattal ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·62	45·30	55·18
		Kukrahaty ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	50·84	?
		Garbetta ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	46·29	?
	24-Pergunnahs ...	Diamond Harbour ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·25	63·79	59·79
		Canning Town ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·85	?
		Alipore Jail ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·31	52·87	57·16
		Barrackpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·21	52·12	51·07
		Dum-Dum ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·95	65·43	52·65
		Baraset ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·18	58·71	51·15
		Busseerhat ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·91	62·41	55·42
	Howrah ...	Howrah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·95	59·64	52·86
		Mohesreka (*Chiloberiah.*) ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·04	55·04	53·04
	Hooghly ...	Serampore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·16	55·03	51 29
		Hooghly ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·18	37·53	49·30
		Jehanabad ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1 18	41·61	56·23
	Burdwan ...	Culna ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·83	41·32	45·18
		Burdwan ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·77	47·25	48·50
		Cutwa ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·06	43·11	48·56
		Raneegunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·09	55·90	50·11
		Mankur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	58·80	?
	Bankoora ...	Bankoora ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·72	50·86	52·21
		Bishenpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·76	57·49	52·74
		Mahara ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·46		52·39
		Khatra ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·58	65·91	54·79
		Indas ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	45·14	?
		Kotalpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	48·40	?
		Auda ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	40 44	?
		Gangajalghati ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	59 17	?
		Raspore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	58·35	?
		Sonamukhi ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	54·44	?
	Beerbhoom ...	Bh. Soory ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·86	59·00	54·57
		Hetampore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·91	47·07	55·21
		Rampore Haut ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·76	47·78	55·...
		Hotpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	55·04	?
		Murarai ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	53 10	?
	Nuddea ...	Ranaghat ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·83	50·10	47·89
		Kishnaghur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·89	42·95	46 93
		Chooadanga ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·01	49·86	52·00
		Meherpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·94	53·15	48·42
		Koushtea ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·95	56·06	55·36
	Khoolna ...	Satkhira ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·83	54·54	55·99
		Bagirhat ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·14	55·48	62·64
		Khoolna ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·89	56·82	55·71
		Nakipur ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
		Rampal ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
	Jessore ...	Narail ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·89	52·01	46·86
		Jessore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·92	63·90	55·27
		Jhenidah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·96	59·74	54·31
		Magoorah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·86	56·90	50·03
		Bongong ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·91	47·64	52·67
	Moorshedabad ...	Kandi ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·82	53·58	51·90
		Berhampore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·89	46·28	52·19
		Lalbagh ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·90	47·13	51·61
		Azimgunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·72	?	51·92
		Jungipore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·68	55·01	49·81
		Lalgola ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·63	59·02	51·57
		Jiagunge ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	43·20	?
		Akhriguj ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	43·06	?
		Patkabari ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
EAST BENGAL	Chittagong ...	Cox's Bazar ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	123·59	136·29
		Chittagong ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·72	77·08	95·14
		Kutubdia ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	113·09	?
		Satkanya ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	63·06	?
	Chittagong Hill Tracts.	Rangamati ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·92	63·12	84·66
		Ruma ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·55	67·20	81·06
	Backergunge ...	Patuakhally ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·06	87·66	88·75
		Perozepore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·12	72·64	71·14
		Burrisal ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·83	73·21	68·58
		Bhola ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·64	80·09	82·66

Statement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 21st of February 1890—contd

Meteorological Division.	District.	Station.	Rainfall: Saturday, 15th February.	Sunday, 16th February.	Monday, 17th February.	Tuesday, 18th February.	Wednesday, 19th February.	Thursday, 20th February.	Friday, 21st February.	Total: Number of rainy days.	Total: Rainfall of week.	Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	Average rainfall from 15th May to date.
EAST BENGAL —*concld.*		*Gournadi*	...	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	61·31	?
		Bauphal	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	93·12	?
	Noakholly ...	Noakholly	.....	.....	.....	.....	...	.....	.....	Nil	Nil	Nil	0·08	102·58	108·48
		Feuny	.....	.....	.....	.....	...	.....	.....	Nil	Nil	Nil	1·09	79·03	107 81
		Harishpore ...	... ...	.....	.....	... ...	....	.....	.....	Nil	Nil	Nil	?	84·32	?
		Ramganj	.....	.....	.....	... ...	...	.....	... ..	Nil	Nil	Nil	?	86·75	?
	Furreedpore	Madaripore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·77	62·98	56·32
		Furreedpore...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·06	65·60	57·32
		Gomlando	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·13	58·05	54·07
	Dacca ...	Munshigunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1·08	77·51	71·16
		Dacca	... ...	.....	.....	.....	.....	... ..	.....	Nil	Nil	Nil	0·90	76·45	69·38
		Narainkunge	.....	... ..	....	... ..	.....	... ..	.....	Nil	Nil	Nil	1·05	81·14	69·83
		Manickgunge	.....	.....	... ...	... ..	.....	... ..	... ..	Nil	Nil	Nil	1·09	69·67	61 00
		Joydebpore	.....	... ..	.....	... ..	.....	... ..	.....	Nil	Nil	Nil	?	68·55	?
	Hill Tipperah. Tipperah ...	Agartola	.....	.....	.....	.....	... ..	.....	.....	Nil	Nil	Nil	0·94	44·38	62 49
		Comilla	.....	.... .	... ...	... ..	.....	... ..	.... .	Nil	Nil	Nil	0·79	62·97	76·09
		Chandpore	.....	.....	.....	... ..	.....	... ..	.....	Nil	Nil	Nil	0·73	65·07	76·52
		Brahmunberia	... ..	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	1·08	53·12	62·79
		Rasmchandra-pore.	... ..	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	60·82	?
		Nasirnagar ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	32·39	?
		Daudkandi ..	.....	.... .	.....	.....	.....	... .	.....	Nil	Nil	Nil	?	53·73	?
		Kasba ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	62 44	?
		Laksham ..	... ..	.....	.....	.....	.....	... ..	.....	Nil	Nil	Nil	?	60·48	?
	Mymensingh..	Kishoregunge	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·80	70·80	70·02
		Atia (*Tangail*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	1 02	62·60	56·45
		Mymensingh	.....	.....	... ..	.....	.....	... ..	... ..	Nil	Nil	Nil	0·87	67 03	74·85
		Jamalpore ..	.....	... ..	.....	.....	.....	.....	... .	Nil	Nil	Nil	1·03	86·01	65·19
		Netrekona	.....	... ..	... ..	.....	.....	.....	... .	Nil	Nil	Nil	0·45	126·47	73·19
		Subornakhali	.....	.....	.....	.....	.....	... ..	... .	Nil	Nil	Nil	?	57·43	?
		Durgapore ...	.....	.....	.....	.....	.....	...	.....	Nil	Nil	Nil	?	150 28	?
		Sherepore Town	.....	.....	.....	...	.....	.....	.....	Nil	Nil	Nil	?	88 17	?
		Dewanganj ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	57·08	?
NORTH BENGAL.	Pubna ...	Pubna ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·03	50·20	54·67
		Serajgunge ..	.....	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	1·03	60·51	53·89
	Bogra ...	Sherepore ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·89	62·07	58·31
		Nowkhilla ...	.....	.....	.....	.....	.....	... ..	.....	Nil	Nil	Nil	0 79	62·41	54·89
		Bogra ..	.....	.....	.....	.....	.....	... ..	.....	Nil	Nil	Nil	0·83	71·33	61·42
		Panchbibi	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·52	65·08	56·24
	Rajshahye ...	Beaulesh	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·77	46·34	53·68
		Nattore	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·89	58·84	55 81
		Naogaon	.....	... ..	... ..	.....	.....	.....	.....	Nil	Nil	Nil	0·40	67·87	61·82
		Lalpore ...	.....	.....	.....	.....	.....	...	.....	Nil	Nil	Nil	?	30·72	?
		Manda ...	.....	.....	.....	.....	.....	... ..	.....	Nil	Nil	Nil	?	45·27	?
	Maldah ..	Maldah	.....	... ..	.....	.....	.....	...	... ..	Nil	Nil	Nil	0·51	50·51	52·23
		Chanchal ...	... ..	.....	.....	.....	.....	.....	... .	Nil	Nil	Nil	0 65	28·06	5·.·5
		Gajol ...	.....	.....	... ..	.....	.....	.....	.....	Nil	Nil	Nil	?	30·79	
		Sibganj ...	.....	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	?	51·77	
	Dinagepore ...	Mohadebpore	.....	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	0·04	53·63	57 03
		Churamon ..	.....	.....	.....	.....	.....	.....	... ..	Nil	Nil	Nil	0·47	51·82	53·05
		Raigange ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	62·37	58 31
		Dinagepore ..	.....	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	0·49	48·33	53·91
		Balooghat	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·25	61 29	51·77
		Thakoorgaon	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	87·81	?
	Rungpore ..	Bhawanigunge (*Gyabanda*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·51	88·39	62·17
		Rungpore ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 33	74·08	74·88
		Kurigram ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 31	91 62	73·65
		Bagdogra (*Nilphamari*)	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	88·40	85·02
		Ulipore ...	.....	.....	... ..	.....	.....	.....	.....	Nil	Nil	Nil	?	79·10	?
	Julpigoree ...	Julpigoree ...	... ..	.....	.....	... ..	.....	.....	... ..	Nil	Nil	Nil	0·27	123·45	117 27
		Alipore Door	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	119·58	?
		Fallacotta ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	128·23	?
		Debiganj ...	.....	.....	.....	.....	.....	... ..	.....	Nil	Nil	Nil	?	90·94	?
		Bhagatpore (*Nayrakatta*).	.....	.....	.....	.....	.....	... ..	.....	Nil	Nil	Nil	?	130·22	?
	Cooch Behar	Dinhatta ..	.....	.....	... ..	... ..	.....	.....	... ..	Nil	Nil	Nil	0·40	98·83	96·79
		Cooch Behar..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·28	125 89	118·58
		Mickilgunge..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·48	122·40	106·22
		Matabhanga....	.....	... ..	.....	.....	.....	.....	.....	Nil	Nil	Nil	0·42	118·03	112·06
	Darjeeling Hill.	Buxa ...	.....	... ..	.....	.....	... ..	.....	.....	Nil	Nil	Nil	0·68	102·37	103 3
		Silliguri ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0 29	121·02	108·69
		Darjeeling ...	.....	.....	.....	.....	.....	..	..	Nil	Nil	0·61	0 61	128·28	109 39
		Kalimpong ..	.....	.....	.....	... .	.....	.....	.....	Nil	Nil	Nil	0·52	92·15	84·49
		Kurseong ...	... ..	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	170 29	?
...TH BIHAR	Purneah ...	Kissengunge...	... ..	.....	... ..	.....	.....	... ..	.....	Nil	Nil		0·44	103·67	70·87
		Arrareah ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil		0·52	79·75	64·20
		Purneah ..	.....	.....	.....	.....	.....	.....	.....	Nil	Nil		0·53	63·47	62·13
		Gondwara ...	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?		?
		Balarampore	.....	.....	... ..	.....	.....	.....	.....			Nil	?		?
		Matsari ...	.....	.....	.....	.....	.....	.....	.....			Nil	?		
		Kaliaganj ...	.....	.....	.....	.....	.....	.....	.....			Nil	?		
	North Bhagulpore.	Maddapore ..	.....	.....	.....	.....	.....	.....	.....			Nil			?
		Soopool ...	.....	.....	.....	.....	.....	.....	.....			Nil	0·51	60·85	50·06
		Protabganj ...	.....	.....	.....	.....	.....	.....	.....			Nil	0·39	67·26	48·57
														88·16	
	Durbhunga ...	Jeppore ...	.....	.....	.....	.....	.....	.....	.....			Nil	0·38	42·57	43 61
		Durbhunga ...	.....	.....	.....	.....	.....	.....	.....			Nil	0·41	50·24	46·27
		Madhubani ...	.....	.....	.....	.....	.....	.....	.....			Nil	0·30	63·56	45 47
		Bahera ...	.....	.....	.....	.....	.....	.....	.....			Nil	?	69·96	
		Roshera ...	.....	.....	.....	.....	.....	.....	.....			Nil	?	55·84	
	Mozufferpore	Sitamarhi ..	.....	.....	.....	.....	.....	.....	.....			Nil	0·27	55·45	43 39
		Mozufferpore	.....	.....	.....	.....	...	.....	.....			Nil	0·39	48 47	45 97
		Hajipore ...	.....	.....					.....			Nil	0·42	42·57	42 47
		Pare ...	.....	.....					.....			Nil	?	37·09	
		Mahua ...	.....	.....					.....			Nil	?	41·04	?
		Sishar ...	.....	.....					.....			Nil	?	?	?
		Pupri ...	.....	.....					.....			Nil	?	48·14	?

atement of Rainfall in Bengal for the week ending Friday (8 a.m.), the 21st of February 1890—concld.

Meteorological Division.	District.	Station.	Rainfall. Saturday, 15th February.	Sunday, 16th February.	Monday, 17th February.	Tuesday, 18th February.	Wednesday, 19th February.	Thursday, 20th February.	Friday, 21st February.	Total. Number of rainy days.	Total. Rainfall of week.	Total rainfall since 1st of month.	Average total rainfall from 1st of month.	Total rainfall since 15th May 1889.	Average rainfall from 15th May to date.
8TH BEHAR *concluded*	Champaran ..	Motihari	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'5	76'33	45'19
		Bettiah	... ..	.....	.....	.....	... ..	... ..	... .	Nil	Nil	Nil	0'39	52'57	48 57
		Raqaha ..	... ..	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	76'24	?
		Burhurwa	.....	.....	... ..	.....	.....	.....	.....	Nil	Nil	Nil	?	51'70	?
	Saran ...	Gopalgunge ...	.....	... ..	.....	... ..	.. ...	... ..	.....	Nil	Nil	Nil	0'48	3[illegible]'48	44'07
		Sewan	. ..	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'39	44'20	44'40
		Chuprah ...		.....	.....	.. ...	.....	.....	... ..	Nil	Nil	Nil	0'32	40'74	40'92
TH BEHAR	Shahabad	Buxar	... ..	.....	.....	.....	... ..	... ..	.....	Nil	Nil	Nil	0'31	47'44	38'03
		Dehree ...	... ..	.....	.....	.....	.....	.. ...	.....	Nil	Nil	Nil	0'21	43'06	40'26
		Bhaloosh ...	.....	.....	... .	... ..	... ..	.....	.....	Nil	Nil	Nil	0'46	38'16	41'43
		Sasseram ...	... ..	.....	.....	.....	.....	... ..	.....	Nil	Nil	Nil	0'42	20'41	41'74
		Arrah ...	.....	... ..	... ..	... ..	... ..	.....	.....	Nil	Nil	Nil	0'38	42'09	40'73
		Mohaniah	.....	... ..	.....	.....	.....	... ..	.....	Nil	Nil	Nil	?	?	
	Gya	Aurungabad .	.. ..	... ..	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'31	38'48	43'23
		Gya ...	... .	... ..	... ..	.....	... ..	.....	... ..	Nil	Nil	Nil	0'46	39'85	43'13
		Nowadah ...	... ..	... .	.....	.....	...	... ..	.....	Nil	Nil	Nil	0'45	39'59	40'59
		Jehanabad ...	.....	.....	.....	... ..	... ..	... ..	... .	Nil	Nil	Nil	0'37	33'40	40'54
		Arwal .	.....	. ..	.....	... ..	... ..	.....	... ..	Nil	Nil	Nil	?	34'34	?
		Daudnagar	.....	... ...	.....	.....	.....	... ..	.....	Nil	Nil	Nil	?	26'69	?
		Sherghati .	... ..	.....	... ..	.....	.....	... ..	.....	Nil	Nil	Nil	?	29'20	?
		Rajauli	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	17'02	?
		PakriBarawan	... ..	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	31'90	?
	Patna .	Patna ..	.....	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	0'35	51'49	42'38
		Dinapore	.....	.....	.....	... ..	... ..	.....	... ..	Nil	Nil	Nil	0'31	45'53	41'66
		Behar ...	.....	... ..	...	... ..	... ..	.....	... ..	Nil	Nil	Nil	0'38	41'08	42'48
		Barrh ...	.....	... ..	.....	.	.....	.....	... ..	Nil	Nil	Nil	0'38	35'84	40'19
		Bickram ...	.....	... .	.....	... ..	.....	.....	.....	Nil	Nil	Nil	.	41'28	
		Hilsa ..	.....	... ..	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	35'21	?
	Monghyr ...	Begoosarai ...	.....	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	0'52	47'62	40'74
		Monghyr	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'49	41'07	47'07
		Jamui .	... ..	... ..	... ..	.....	.....	... ..	.....	Nil	Nil	Nil	0 52	39'48	43'56
		Gogri ..	... ..	.	... ..	... ..	.....	.....	... ..	Nil	Nil	Nil	?	50'19	?
		Sheikpura ..	... ..	... ..	... ..	.....	.....	... ..	.....	Nil	Nil	Nil	?	43'32	?
	South Bhagulpore	Bhaugulpore ..	... ..	... ..	.....	... ..	.....	.....	.....	Nil	Nil	Nil	0'47	45 00	42'70
		Banka	... ..	.....	...	... ..	.....	.....	.....	Nil	Nil	Nil	0'45	38 34	44'23
		Kalgong ...	... ..	.....	... .	... ..	.....	.....	.....	Nil	Nil	Nil	?	46'97	?
		Bungaon ..	.....	... ..	... ..	... ..	.....	.....	.....	Nil	Nil	Nil	?	?	?
	Sonthal Perguunahs.	Rajmehal ...	... ..	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'25	59'90	52 50
		Godda ...	... ..	.....	. ...	... ..	.....	.....	.....	Nil	Nil	Nil	0'54	49 04	48 04
		Pakour .	.....	... ..	... ..	.....	.....	.....	.....	Nil	Nil	Nil	0'33	73'59	55'07
		Nya Doomka	. ..	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'64	56'77	53'03
		Deogur	... ..	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	0'56	40'40	51'20
		Jamtara ...	... .	... ..	.....	.....	... ..	.....	.....	Nil	Nil	Nil	0 32	45'21	49 46
		Mohagama .	...	.....	... ..	.....	... ..	.....	.....	Nil	Nil		?	50'41	?
		Nanihat ...	... ..	.....	... ..	.....	... ..	.....	.....	Nil	Nil	Nil	?	55'87	?
TIA NAGE.	Hazaribagh ...	Paonamba (*Giridi*).	. ...	... ..	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'63	58'90	48'12
		Hazaribagh .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'64	49'10	47 76
		Semtaaruan	.....	.....	... .	.....	.....	.....	.....	Nil	Nil	Nil	0'42	36'24	47'34
		Mahudi Hills	...	.....	.....	... ..	.....	.....	.....	Nil	Nil	Nil	0'47		48'07
		Jhoomra Hills	... ..	.....	. ...	.....	.....	.....	... ..	Nil	Nil	Nil	0 46	43'00	63'30
		Barhi ...	... ..	... ..	... .	... ..	... ..	... ..	... ..	Nil	Nil	Nil	?	31'36	?
		Chatra .	...	.....	.....	. . .	.....	.....	... ..	Nil	Nil	Nil	?	46'04	?
		Karaglcha ..	.....	.....	... .	.....	.....	.....	... ..	Nil	Nil	Nil	?	30'35	?
		Ramghar	... ..	.....	...	.....	... ..	.....	... ..	Nil	Nil	Nil	?		?
	Lohardugga ...	Lohardugga ...	.. ..	.....	.. ...	.....	.....	.....	.. ...	Nil	Nil	Nil	0'57	45'24	52'02
		Ranchi ...	.....	.....	... ..	... ..	... ..	.....	.....	Nil	Nil	Nil	0'87	53 61	53 06
		Palamow	... ..	.....	.....	.....	.....	.....	... ..	Nil	Nil	Nil	0'46	34'16	43'84
		Silli ..	. .	... ..	.. ..	.....	.....	...	.....	Nil	Nil	Nil	?	33'80	?
		Balumat .	. ..	... ..	. ..	.....	.....	.....	.....	Nil	Nil	Nil	?	?	?
		Hosseinabad ..	... ..	..	. . .	... ..	.....	.....	.....	Nil	Nil	Nil	?	44'40	?
		Garwah .	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	28 77	?
	Singbhoom	Chyebassa ...	.....	... .	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'80	48'76	52'50
		Chakradharpore.	.....	.....	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	40'80	?
		Ghatsilla ...	.....	.....	.. ..	.....	.. ...	.....	.....	Nil	Nil	Nil	?	58'70	?
		Baharagura...	.....	.. .	... ..	.....	.....	.....	.....	Nil	Nil	Nil	?	53'80	?
	Manbhoom ...	Purulia ...	.....	... .	.....	.....	.....	.....	.....	Nil	Nil	Nil	0'88	43'52	40'89
		Gobindpore .	.....	... ..	... .	... ..	... ..	. . .	.....	Nil	Nil	Nil	0'83	33'19	45'84
		Raghunathpore.	... ..	.....	.....	... ..	... ..	.....	.....	Nil	Nil	Nil	?	45'01	?
		Barrabhoom	.....	... .	.....	.....	.....	.....	.....	Nil	Nil	Nil	?	44'32	?
		Jhalda ..	....	... ..	.....	... ..	... ..	.....	.....	Nil	Nil	Nil	?	51'42	?
		Cass .	.....	. ..	.....	... ..	... ..	.....	.....	Nil	Nil	Nil	?	58'56	?

Explanation.—Indicates that no rain has fallen If the return for any day has not been received, the corresponding space is left blank. If any of the returns wanting, the corresponding spaces in the total rainfall columns are left blank.

CALCUTTA, *the 25th February* 1890.

SUMMARY OF THE METEOROLOGICAL AND RAINFALL OBSERVATIONS TAKEN IN BENGAL FOR THE WEEK ENDING FRIDAY, THE 21st FEBRUARY 1890.

In the meteorology of the previous week it was noticed that there had been a slow but steady disappearance of the north-east monsoon or cold-weather conditions with the gradual establishment of the conditions which obtain just previous to the setting in of the hot weather. Pressure at the close of that week was decidedly low, while temperature was rather largely in excess of the normal, and the northerly component in the wind directions was growing steadily more feeble. The general result of the changes which have taken place this week has been to practically almost entirely efface the conditions which obtain in the cold season and to establish those of the hot weather. Winds have been generally light and variable during the week, with a steadily increasing southerly component in them, temperature on the whole has risen steadily, and pressure has continued very low for the season. The only period during the week when there was any break in the steady establishment of the hot season conditions was on the 17th and 18th, when a barometric depression passed through Bengal. This depression had first been observed near Jacobabad on the morning of the 15th and it moved in an easterly direction, but though the barometric depression at its centre was decidedly large, yet it failed to give any rain to Bengal in its passage through it. When the depression commenced to advance over Bengal, temperature was as usual exceptionally high, but in its rear temperature fell very distinctly, though the effect was only very temporary; and again at the close of the week temperature generally averaged from 3° to 6° above the normal. With the absence of any disturbance, therefore, which was sufficiently intense to give local storms, again the whole province has been quite rainless for the period under review.

Pressure—Has been in defect of the normal almost throughout the week, and the average defect in different districts has varied from about nine to twelve-hundredths of an inch.

Temperature.—The mean temperature of the whole province for the week has been between 4° and 5° above the normal, the excess being largest in South Behar and Chutia Nagpur, where it has exceeded five degrees. The rapid increase in temperature during the week is clearly seen in the figures representing the average mean temperature in the various districts, and thus in Orissa the rise during this period has equalled 4·2°, in South-West Bengal it has been 5·9°, in East Bengal 6·0°, in North Bengal 4·1°, in North Behar 3·6°, in South Behar 3·9°, and in Chutia Nagpur 4·0°. The actual temperatures during the week, the range from day to night, and their variation from their normal values are best seen in the following table where the average maximum, minimum and mean temperatures at nine typical stations in different districts of the province are given, together with their normal values. It will be seen that both day and night temperatures have been almost equally in excess, and that at some stations the average temperatures have even been as much as about 6° and 7° above the normal:—

Table showing the excess or defect of the actual mean temperature from the normal for the week ending 21st February 1890.

	Normal mean maximum temperature for the week ending 21st February.	Actual mean maximum temperature for the week ending 21st February 1890.	Variation of actual mean from the normal.	Normal mean minimum temperature for the week ending 21st February.	Actual mean minimum temperature for the week ending 21st February 1890.	Variation of actual mean from the normal.	Normal mean daily temperature for the week ending 21st February.	Actual mean daily temperature for the week ending 21st February 1890.	Variation of actual mean from the normal.
Cuttack	90·3	93·9	+3·6	65·5	66·9	+1·4	77·9	80·4	+2·5
Calcutta	82·0	85·4	+3·4	60·3	64·6	+4·3	71·2	75·0	+3·8
Sibsagar	82·3	86·5	+4·2	57·8	62·5	+4·7	70·1	74·5	+4·4
Dacca	83·0	90·0	+7·0	57·8	61·8	+4·0	70·4	75·9	+5·5
Burdwan	78·2	84·2	+6·0	52·5	56·6	+4·1	65·4	70·4	+5·0
Patna	81·9	87·0	+5·1	56·2	60·0	+3·8	69·1	73·5	+4·4
Gya	79·5	83·3	+3·8	51·4	51·7	+0·3	65·5	67·5	+2·0
Purnea	77·7	83·6	+5·9	54·2	59·3	+5·1	66·0	71·4	+5·4
Bauribagh	47·4	53·2	+5·8	34·2	39·9	+5·7	40·8	46·6	+5·8
Darjeeling									

Rainfall—Has been entirely absent throughout the whole province for the week.

The following table gives the summary of the temperature and rainfall data of each of the seven meteorological divisions of the province for the week ending Friday, the 21st of February 1890 :—

Meteorological Divisions.	Temperature						Rainfall.								
	Highest observed during week.	Lowest observed during week.	Averages for week. Of highest of each day.	Of lowest of each day.	Of mean for each day.	Average mean of week above or below normal mean of week.	Of week. Average.	Normal average.	Variation.	Rainy days. Average number in week.	Normal average number in week.	Variation.	Since 1st of month. Average.	Normal average.	Since 15th May 1889. Average	Normal average.
	°	°	°	°	°	°	Inches.	Inches.	Inches.				Inches.	Inches.	Inches.	Inches.
Orissa	95·9*	61·0*	88·0*	67·5*	77·8*	+2·5*	Nil	0·27	−0·27	0·0	0·4	−0·4	Nil	0·75	62·10	54·21
South-West Bengal ...	95·3	51·5	88·1	62·5	75·3	+4·8	Nil	0·26	−0·26	0·0	0·4	−0·4	Nil	0·91	52·81	52·85
East Bengal	89·1	54·6*	84·4	62·2	73·3	+4·4	Nil	0·26	−0·26	0·0	0·5	−0·5	Nil	0·88	76·56	75·16
North Bengal	88·6	49·8	84·2	55·2	69·7	+4·4	Nil	0·22	−0·22	0·0	0·4	−0·4	Nil	0·55	73·54	74·98
North Behar*	84·7	48·9	82·8	51·2	66·9	+3·1	Nil	0·10	−0·10	0·0	0·3	−0·3	Nil	0·41	57·89	49·20
South Behar*	91·2	52·5	86·0	56·8	71·4	+5·1	Nil	0·12	−0·12	0·0	0·3	−0·3	Nil	0·41	44·16	44·27
Chutia Nagpur	88·0*	56·3*	83·9*	58·9*	71·4*	+5·2*	Nil	0·17	−0·17	0·0	0·4	−0·4	Nil	0·64	43·08	5

* Pooree, Chupra, Dehree and Chyebassa not included.

Meteorological Office, Bengal; *The 25th February* 1890.

A. Pedler, *Meteorological Reporter to the Govt. of Bengal.*

Results of the Barometrical and Thermometrical Observations taken at the Meteorological Office, Chowringhee, from 16th to 22nd February 1890.

Month.	Date.	Pressure at 10 A.M. corrected and reduced to 32° Fahr.	Temperature. Daily mean.	Maximum.	Range.	Minimum.	Hygrometry. Dry bulb at 10 A.M.	Wet bulb at 10 A.M.	Vapour tension at 10 A.M.	Dew point at 10 A.M.	Humidity at 10 A.M.	Rainfall past 24 hours.
		Inches.	°	°	°	°	°	°	Inches.	°	%	Inches.
Feb. 1890 ...	16th ...	29·849	75·7	82·9	14·5	68·4	77·6	72·8	·743	70·3	79	Nil
,, ,, ...	17th ...	·806	79·4	89·0	19·2	69·8	79·6	72·6	·709	68·9	70	.....
,, ,, ...	18th ...	·959	76·2	86·4	20·4	66·0	78·6	63·6	·389	52·0	40	.....
,, ,, ...	19th ...	30·018	73·5	86·3	25·6	60·7	79·6	63·8	·380	51·4	37	.....
,, ,, ...	20th ...	29·999	75·6	87·8	24·4	63·4	79·6	68·6	·551	61·7	55	.....
,, ,, ...	21st ...	30·002	77·5	89·0	23·1	65·9	80·4	68·6	·542	61·2	52	.....
,, ,, ...	22nd ...	29·982	77·2	89·6	24·9	64·7	79·6	67·6	·516	59·8	51	.....

	Inches.
The mean 10 A.M. pressure of the seven days	29·945
	°
The mean temperature of the seven days	76·4
The extreme variation of temperature	28·9
The maximum temperature	89·6
	%
The mean 10 A.M. relative humidity of the seven days	55
	Inches.
The total fall of rain from 16th to 22nd February 1890	Nil

The daily mean temperatures are the crude means of maximum and minimum temperatures.

C. Little, *For Meteorological Reporter to the Govt. of India.*

Meteorological Office, India; *The 24th February* 1890.

Results of the Meteorological Observations taken at the Alipore Observatory from 16th to 22nd February 1890.

Month.	Date.	Maximum in sun.	Number of hours of bright sunshine.	Mean pressure barometer at 32° Fahr.	Temperature. Mean.	Maximum.	Range.	Minimum.	Hygrometry. Mean wet bulb.	Vapour tension.	Dew point.	Humidity.	Wind. Prevailing direction.	Miles recorded.	Rain.	Weather.
1890.		°		Inches.	°	°	°	°	°	Inches	°	%			Inches.	
Feb.	16th	137·5	7·9	29·756	75·4	86·4	18·7	67·7	71·0	0·702	68·7	81	SSW and S by W ...	137	Nil	Chiefly cloudy, ∆.
	17th	139·5	8·9	·735	77·1	88·5	19·0	69·5	71·1	·681	67·8	74	SW and SSW	181	,,	Clear.
	18th	138·5	7·3	·872	74·6	85·5	19·5	66·0	66·9	·566	62·4	67	N, variable and calm	63	,,	Chiefly clear, ∆, = .
	19th	140·2	8·1	·917	72·4	85·2	25·9	59·3	62·4	·432	54·9	58	NNW and variable..	44	,,	Clear.
	20th	139·0	8·1	·910	74·2	86·5	25·1	61·4	66·7	·557	62·0	67	S and WSW	80	,,	Clear.
	21st	143·4	8·9	·889	75·8	88·5	24·6	63·9	66·3	·519	60·0	62	SW by W and variable.	81	,,	Clear.
	22nd	142·6	8·6	·901	75·1	88·6	25·5	63·1	66·4	·533	60·8	61	SW by S and variable.	46	,,	Clear, ∆.

		Inches.
The mean pressure of the seven days		29·854
The average pressure of the corresponding period for 24 years, S.-G.'s Office ...		29·948
		Hours.
The total number of hours of bright sunshine		57·8
The maximum possible number of hours of sunshine		80·8
		°
The mean temperature of the seven days		74·9
The average temperature of the corresponding period for 24 years, S.-G.'s Office		74·0
The extreme variation of temperature		29·3
The maximum temperature		88·6
		Miles.
The highest velocity of the wind in one hour		13
		lbs.
The highest pressure of wind on one square foot		Not measurable.
		%
The mean relative humidity		67
The average relative humidity of the corresponding period for 24 years, S.-G.'s Office		66
		Inches.
The total fall of rain from 16th to 22nd February 1890		Nil
The average fall of the corresponding period for 24 years, S.-G.'s Office ...		0·25
The total fall from 1st January to 22nd February 1890		0·77
The average fall of the corresponding period for 24 years, S.-G.'s Office ...		1·29

The mean pressure, temperature, &c., are deduced from the traces of the Barograph and Thermograph, and from observations made at 6h, 10h, 16h, and 22h.

The maximum and minimum temperatures are obtained from self-registering thermometers. All the thermometers are verified, and the readings have been corrected to a standard constructed and verified at the New Observatory. They are exposed under a thatched shed open at the sides, and are suspended four feet above the ground.

The barometer readings are corrected approximately to those of the standard, Newman's No 86, formerly at the Surveyor-General's Office.

The hygrometric elements are obtained from Tables III, IV, and V of the official tables computed in the Meteorological Office, and based on Regnault's modifications of August's formula.

The directions and the movement of the wind are taken from the trace of a Beckley's anemograph.

The mouth of the rain-gauge is one foot above the ground.

∆ dew, = fog.

C. LITTLE,

For Meteorological Reporter to the Govt. of India.

METEOROLOGICAL OFFICE, GOVT. OF INDIA;
Calcutta, the 24th February 1890.

MEMORANDUM.

DURING the week ending 8th February 1890, the returns of the vital statistics of the principal Municipalities in Bengal presented the following results :—

1. The birth-rate amounted to 23·3 per 1,000 of population, against 21·7 per 1,000 in the preceding week ending 1st February, showing an increase in the registration, and the death-rate to 23·9 per 1,000, against very nearly the same ratio, viz., 23·7 per 1,000.

2. The following Municipalities returned the highest proportions of births and deaths —

Births.

	Ratio per *mille.*
Darjiling	51·9
Comillah	50·1
Naraingani	37·3
Durbhanga	36·2
Monghyr	35·3
Bhagulpore	31·7
Gya	31·4

Deaths.

	Ratio per *mille.*
Poori	128·0
Darjiling	50·3
Jessore	49·0
Serampore	47·1
Hughli and Chinsurah ...	46·9
Purneah	38·1
Naraingani	37 3
Burdwan	35·1
Gya	34 8
Midnapore	31·0

3. The mortality from the several death-causes was as follows in comparison with that in the preceding week :—

	Ratio per *mille* during the weeks ending—	
	8th February 1890.	1st February 1890.
Cholera	2·3	2·2
Small-pox	1·1	·6
Fever	10·3	9·3
Bowel-complaints	3·3	3·9
Injury	·5	·4
Other causes	6·4	7·3

The only noticeable point indicated by the above figures is that there was a noticeable increase of mortality from fever.

4. The following Municipalities suffered in a more marked degree than the others from the diseases mentioned in the foregoing table :—

Cholera.

	Ratio per *mille.*
Poori ...	33·6
Hughli & Chinsurah ...	8·2
Serampore ...	7·8
Howrah ...	5·7

Small-pox.

	Ratio per *mille.*
Poori...	39·8

Fever.

	Ratio per *mille.*
Darjiling ...	44·5
Purneah ...	31·2
Gya ...	21·8
Hughli and Chinsurah...	21·3

Bowel-complaints.

	Ratio per *mille.*
Serampore ...	17·7
Burdwan ...	10·7
Poori ...	10·5

Other causes.

	Ratio per *mille.*
Poori ...	25·2
Midnapore ...	18·6
Bali ...	17·5
Naraingani ...	16·6
Gya ...	11·6

Small-pox unfortunately continued to rage in Poori town with much severity.

5. The mortality referable to *Sex*, *Class* and *Age* stood as follows :—

According to Sex.

	Ratio per *mille.*
Males	26·3
Females	21·3
Ratio of male deaths to every 100 female deaths, calculated on the proportion such mortality bears to the total male and female population ...	124

According to Class.

	Ratio per *mille.*
Christians	29·9
Hindus	24·9
Mahomedans ...	21·4

According to Age.

	Ratio per *mille.*
Under 1 year ...	141·3
1 and under 5 years ...	24·6
5 „ 10 „ ...	15·1
10 „ 15 „ ...	13·1
15 „ 20 „ ...	13·5
20 „ 30 „ ...	15 2
30 „ 40 „ ...	18·1
40 „ 50 „ ...	18 3
50 „ 60 „ ...	26·8
60 years and upwards ...	75·9

W. H. GREGG, *Dip. Publ. Health, Camb.*,
Sanitary Commissioner for Bengal.

The 24th February 1890.

...Deaths in the principal Municipalities in Bengal during the week ending 8th February, 1890.

1	2	3			4			5			6	7							8						9	10				11	12
DISTRICTS.	NAMES OF MUNICIPALITIES.	POPULATION.			BIRTHS.							MORTALITY ACCORDING TO—																			
					NUMBER OF—			RATIO PER 1,000 OF POPULATION PER ANNUM.				Disease.							RATIO PER 1,000 OF POPULATION PER ANNUM.								Sex.					
												DEATHS FROM—														DEATHS.		RATIO PER 1,000 OF POPULATION PER ANNUM.			
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Ratio of male births to every 100 female births.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injury.	Other diseases.	All causes.	Cholera.	Small-pox.	Fevers.	Bowel-complaints.	Injury.	Other diseases.	All causes.	Ratio of deaths per 1,000 of population per annum in the previous week.	Males.	Females.	Males.	Females.	Ratio of male deaths to every 100 female deaths, calculated on the proportion such mortality bears to the total male and female population.
Burdwan ...	Burdwan	18,063	16,017	34,080	5	3	8	7·6	4·6	12·2	166	...	..	11	7	.	5	23	...	...	16·8	10·7	.	7·6	35·1	33·6	12	11	34·5	35·7	97
Midnapore ...	Midnapore ...	16,927	16,633	33,560	8	6	14	12·4	9·3	21·7	133	1	...	3	3	1	12	20	1·5	...	4·6	4·6	1·5	18·6	31·0	31·0	9	11	27·6	34·4	79
Hughli ...	Hughli and Chinsurah.	15,859	15,829	31,697	7	8	15	11·5	13·1	24·6	87	5	...	13	6	1	3	28	8·2	..	21·3	9·8	1·6	4·9	45·9	44·3	16	12	52·5	39·4	133
Serampore ...	Serampore ...	13,559	12,937	26,496	7	5	12	13·7	9·8	23·6	140	4	..	7	9	...	4	24	7·8	..	13·7	17·7	..	7·8	47·1	58·9	11	13	42·2	52·2	81
	Utterpara	3,046	2,484	5,510	1	1	2	9·4	9·4	19·9	100	...	...	...	1	...	1	2	...	..	..	9·4	...	9·4	18·9	37·7	2	.	34·1	.	No female death.
Howrah ...	Howrah	53,153	37,660	90,813	18	22	40	16·3	12·6	22·9	82	10	..	11	6	1	6	34	5·7	..	6·3	3·4	·6	3·4	19·5	33·5	18	16	17·6	22·1	77
	Bali	7,836	6,979	14,815	3	3	6	10·5	10·5	21·1	100	...	...	2	...	1	5	8	..	..	7·0	.	3·5	17·5	28·1	24·6	6	2	39·8	14·9	279
Nuddea ...	Kishnaghur ...	13,263	14,214	27,477	3	2	5	6·7	3·8	9·5	150	...	1	...	1	...	1	3	...	1·9	...	1·9	...	1·9	5·7	22·7	2	1	7·8	3·7	233
	Ranaghat	4,628	4,655	8,683	..	1	1	..	0·0	0·0	No male birth.	...	..	2	..	...	...	2	...	...	12·0		..	..	12·0	6·0	2	...	25·8	...	No female death.
	Santipore	13,708	15,979	29,687	2	3	5	3·5	5·3	8·8	66	...	...	6	..	...	1	7	..	...	19·5	...	..	1·7	12·3	1·7	5	2	19·0	6·5	316
Jessore ...	Jessore	4,580	3,665	8,495	2	1	3	12·2	6·1	18·4	200	1	..	3	1	..	3	8	6·1	...	18·4	6·1	.	18·4	49·0	55·1	5	3	53·8	42·6	126
Rajshahye ...	Rampore Beauleah	10,766	9,025	19,791	5	5	10	13·1	13·1	26·3	100	...	...	5	...	..	2	7	...	..	13·1	...	...	5·3	18·4	26·3	5	2	24·2	11·5	218
Darjiling ...	Darjiling	4,579	2,439	7,019	1	6	7	7·4	44·5	51·9	16	..	...	6	...	.	2	8	..	..	44·5	.	..	14·6	59·3	22·2	5	3	56·8	64·9	87
Dacca ...	Dacca	42,782	37,379	80,161	11	16	27	7·1	10·4	17·5	69	..	1	9	5	1	6	22		·6	5·8	3·2	·6	3·9	14·3	15·6	11	11	13·4	15·3	87
	Narainganj ...	7,605	4,956	12,561	1	8	9	4·1	33·1	37·3	12	1	..	3	..	1	4	9	4·1	...	12·4	..	4·1	16·6	37·3	41·4	5	4	34·2	42·0	81
Chittagong ...	Chittagong ...	13,340	8,790	22,130	2	2	4	4·7	4·7	9·4	100	...	.	5	3		2	10	..	...	11·7	7·0	.	4·7	23·5	21·1	6	4	23·4	23·7	100
Tipperah ...	Comillah	8,153	5,353	13,506	7	6	13	27·0	23·1	50·1	116	2	...	3	...	...	2	7	7·7	...	11·6	...	...	7·7	27·0	38·5	3	4	19·1	38·9	50
Patna	Patna City ...	78,762	81,475	160,237	28	23	51	9·1	7·5	16·6	121	4	...	25	5	1	4	39	1·3	...	6·1	1·6	·3	1·3	12·7	6·8	22	17	14·5	10·8	140
Gya	Gya	38,290	37,831	76,121	19	27	46	13·0	18·4	31·4	70	2	...	32	...	...	17	51	1·4	...	21·8	...	...	11·6	34·8	30·7	29	22	39·4	30·2	130
Shahabad ...	Arrah	20,960	22,505	43,465	11	8	19	13·2	9·6	22·7	137	...	1	9	2	1	1	14	...	1·2	10·7	2·4	1·2	1·2	16·7	7·2	5	9	12·4	20·8	60
Mozufferpore .	Mozufferpore ...	23,084	19,658	42,742	9	6	15	10·9	7·3	18·2	150	..	...	1	1	2	5	9	..	...	1·2	1·2	2·4	6·1	10·9	14·6	3	6	6·8	15·9	40
Durbhanga ...	Durbhanga ...	33,774	32,322	66,096	20	26	46	15·7	20·5	36·2	77	...	..	15	3	...	9	27	...	...	11·8	2·8	...	7·1	21·2	20·5	19	8	29·3	13·9	241
Sarun	Chupra	25,116	26,554	51,670	17	9	26	17·1	9·1	26·2	188	...	..	2	3	...	4	9	...	...	2·0	3·0	...	4·0	9·1	12·1	6	3	12·4	5·9	240
Bhagulpore ...	Bhagulpore ...	29,640	27,813	57,453	24	11	35	21·7	9·9	31·7	218	...	...	11	...	...	11	22	...	...	9·9	...	...	9·9	19·9	22·6	16	6	28·1	11·2	254
Monghyr ...	Monghyr	28,154	29,366	57,520	17	22	39	15·4	19·9	35·3	77	...	...	8	6	...	9	23	...	...	7·2	5·4	...	8·1	20·8	23·5	13	10	24·9	17·7	181
Purneah ...	Purneah	8,463	6,553	15,016	4	3	7	13·8	10·4	24·2	133	...	...	8	1	..	1	11	...	...	31·2	3·4	...	3·4	38·1	17·3	7	4	43·0	31·7	139
Poori	Poori	13,247	11,537	24,784	6	4	10	12·6	8·4	21·0	150	16	19	9	5	...	13	61	33·6	39·8	18·9	10·5	...	25·2	128·0	100·7	36	25	141·3	112·7	126
	Total				237	475	11·7	11·6	23·3	100	46	22	210	68	10	132	488	2·3	1·1	10·3	3·3	·5	6·4	23·9	23·7	279	209	26·3	21·3	124

DISTRICTS.	NAMES OF MUNICIPALITIES.	Class. Deaths among— Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.	Ratio per 1,000 of Population per annum. Christians.	Hindus.	Mahomedans.	Buddhists.	Other classes.
Burdwan ...	Burdwan	...	17	6	...	...	...	37·3	30·4	...	...
Midnapore ...	Midnapore ...	...	17	3	...	...	...	34·1	21·6	...	..
Hughli ...	Hughli and Chinsurah	...	23	5	...	...	...	47·3	42·3	...	...
Serampore ...	Serampore ...	...	23	1	...	...	...	47·4	55·4	...	...
	Utterpara	...	2	...	...	...	...	19·5	...	...	...
Howrah ...	Howrah	2	24	8	...	...	54·9	18·3	20·3	...	..
	Bali	...	6	2	...	...	...	23·3	79·3	...	...
Nuddea ...	Kishnaghur ...	...	3	...	...	...	...	5·4	...	...	...
	Ranaghat	...	2	...	...	...	...	14·2	...	...	..
	Santipore	...	5	2	...	...	...	12·6	11·6	...	...
Jessore ...	Jessore	...	3	5	...	...	...	34·6	68·0	...	...
Rajshahye ...	Rampore Beauleah	...	3	4	...	...	...	15·7	21·2	...	...
Darjiling ...	Darjiling	...	6	2	...	...	...	67·9	109·9	...	..
Dacca	Dacca	...	14	8	...	...	...	18·1	10·6	...	...
	Narainganj ...	...	4	5	...	...	...	32·9	42·2	...	...
Chittagong ...	Chittagong ...	1	...	9	...	...	65·3	...	30·6	...	...
Tipperah ...	Comillah	1	2	4	...	...	429·8	17·5	28·1	...	...
Patna	Patna City ...	...	29	10	...	...	...	12·7	12·7	...	...
Gya ...	Gya	...	42	9	...	...	...	36·4	29·1	..	...
Shahabad ...	Arrah	...	10	4	...	...	...	16·8	16·8	...	...
Mozufferpore ..	Mozufferpore ...	...	6	3	...	...	...	10·4	12·5	...	...
Durbhanga ...	Durbhanga ...	...	19	8	...	...	...	20·4	23·7	...	...
Sarun	Chupra	...	7	2	...	...	...	9·2	8·6	...	...
Bhagulpore ...	Bhagulpore ...	...	13	9	...	...	...	17·0	27·2	...	..
Monghyr ...	Monghyr	...	17	6	...	...	...	19·8	24·8	..	...
Purneah ...	Purneah	...	6	5	...	...	...	34·0	45·9	...	...
Poori ...	Poori	...	60	1	...	...	...	127·2	247·6	...	...
	TOTAL ...	4	3[illegible]	121	...	...	29·9	24·9	21·4	..	...

DISTRICTS.	NAMES OF MUNICIPALITIES.	Age. Deaths. Under 1 year.	1 and under 5 years.	5 and under 10 years.	10 and under 15 years.	15 and under 20 years.	20 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 and under 60 years.	60 years and upwards.
Burdwan ...	Burdwan	2	1	...	2	2	4	2	6	1	3
Midnapore ...	Midnapore ...	9	...	2	...	1	3	...	1	1	3
Hughli ...	Hughli and Chinsurah	4	4	...	2	1	5	...	2	5	5
Serampore ...	Serampore ...	3	1	2	...	...	2	5	1	2	8
	Utterpara	...	...	...	...	...	1	...	..	...	1
Howrah ...	Howrah	2	7	4	2	1	3	6	2	3	4
	Bali	1	...	...	1	1	1	1	1	...	2
Nuddea ...	Kishnaghur ...	...	...	...	...	...	1	...	...	...	2
	Ranaghat	..	...	...	...	...	1	...	...	1	...
	Santipore	..	...	...	...	...	1	1	...	..	5
Jessore ...	Jessore	4	1	..	...	...	...	1	...	...	2
Rajshahye ...	Rampore Beauleah	1	1	...	...	1	...	3	...	...	1
Darjiling ...	Darjiling	1	2	...	...	1	1	1	1	1	...
Dacca	Dacca	2	3	1	...	...	5	3	1	2	5
	Narainganj ...	1	...	...	1	1	1	2	...	...	3
Chittagong ...	Chittagong ...	1	4	1	...	...	1	2	...	1	...
Tipperah ...	Comillah	1	2	...	...	1	..	1	...	..	2
Patna	Patna City ...	3	...	3	...	2	5	10	4	4	8
Gya ...	Gya	4	2	1	1	1	7	9	10	7	9
Shahabad ...	Arrah	3	1	...	2	...	1	...	1	...	6
Mozufferpore ..	Mozufferpore ...	2	...	1	...	1	2	...	2	1	...
Durbhanga ...	Durbhanga ...	6	2	6	1	...	1	4	...	3	4
Sarun	Chupra	2	...	2	...	1	..	2	1	...	1
Bhagulpore ...	Bhagulpore ...	5	2	1	1	...	3	..	4	2	4
Monghyr ...	Monghyr	4	4	1	2	...	1	2	3	...	6
Purneah ...	Purneah	1	..	..	...	1	6	1	1	...	1
Poori ...	Poori	7	7	7	4	5	6	5	3	6	11
	TOTAL ...	69	44	32	19	21	62	61	44	40	96

DISTRICTS.	NAMES OF MUNICIPALITIES.	Age. Ratio per 1,000 of Population per annum. Under 1 year.	1 and under 5 years.	5 and under 10 years.	10 and under 15 years.	15 and under 20 years.	20 and under 30 years.	30 and under 40 years.	40 and under 50 years.	50 and under 60 years.	60 years and upwards.
Burdwan ...	Burdwan	157·6	23·0	...	41·3	33·3	26·3	15·1	70·6	21·2	105·3
Midnapore ...	Midnapore ...	629·9	...	27·7	...	16·5	21·2	...	14·0	25·2	85·2
Hughli ...	Hughli and Chinsurah	259·0	93·7	...	41·9	20·7	41·9	...	24·9	100·0	125·4
Serampore ...	Serampore ...	219·7	28·8	41·4	...	...	19·3	52·3	15·4	54·3	299·1
	Utterpara	...	...	...	...	...	45·2	...	...	...	200·0
Howrah ...	Howrah	50·4	65·7	33·1	15·8	7·1	6·9	16·2	8·8	28·4	55·5
	Bali	143·6	...	...	43·8	39·0	15·5	18·6	26·9	...	142·1
Nuddea ...	Kishnaghur ...	...	...	...	...	...	10·8	...	...	...	69·2
	Ranaghat	...	...	...	...	...	34·5	...	...	71·8	...
	Santipore	...	...	...	...	...	10·6	12·0	...	...	132·4
Jessore ...	Jessore	1,072·2	105·3	...	...	...	...	34·0	...	...	227·1
Rajshahye ...	Rampore Beauleah	128·1	36·7	...	...	31·3	...	43·3	...	...	54·0
Darjiling ...	Darjiling	429·8	161·7	...	...	81·3	26·0	36·3	75·1	213·1	...
Dacca	Dacca	54·8	21·2	5·2	...	...	17·7	13·4	6·2	22·0	46·7
	Narainganj ...	186·4	...	...	45·8	49·8	19·5	48·8	...	...	239·3
Chittagong ...	Chittagong ...	92·4	105·7	20·8	...	..	11·2	31·2	...	47·9	...
Tipperah ...	Comillah	175·1	79·5	...	...	41·3	...	26·1	...	...	151·4
Patna	Patna City ...	36·2	...	9·3	...	9·3	9·0	22·4	11·0	14·7	30·1
Gya ...	Gya	116·2	16·4	7·4	7·7	9·9	24·7	36·8	53·2	55·4	99·9
Shahabad ...	Arrah	121·1	11·7	...	23·5	...	6·6	...	11·1	...	108·2
Mozufferpore ..	Mozufferpore ...	108·9	...	11·6	...	17·2	12·1	..	20·8	16·0	...
Durbhanga ...	Durbhanga ...	200·4	13·7	39·9	9·4	...	3·9	18·6	...	35·6	65·1
Sarun	Chupra	73·7	...	17·5	...	15·0	...	16·4	8·6	...	15·3
Bhagulpore ...	Bhagulpore ...	217·8	19·8	8·9	8·3	...	14·3	...	33·0	24·4	57·7
Monghyr ...	Monghyr	140·1	33·4	7·4	18·1	...	5·0	11·7	24·5	...	87·0
Purneah ...	Purneah	183·7	...	...	...	52·3	95·[illegible]	18·3	28·0	...	64·4
Poori ...	Poori	1201·3	209·6	163·4	110·9	139·2	59·1	64·2	46·9	139·8	316·7
	TOTAL ...	141·3	24·6	15·1	13·1	13·5	15·3	18·1	18·3	26·5	75·9

OFFICE OF SANITARY COMMISSIONER FOR BENGAL,
The 24th February 1890.

W. H. GREGG, *Dip. Publ. Health, Camb.,*
Sanitary Commissioner for Bengal.

CIRCULAR AND EASTERN CANALS.

Approximate Return of Traffic for the week ending Saturday, the 22nd February 1890, as compared with the corresponding week of the previous year.

Nature of Cargo.	Week ending Saturday, the 22nd February 1890.			Week ending Saturday, the 23rd February 1889.		
	Number of boats.	Weight of cargo.	Tollage.	Number of boats.	Weight of cargo.	Tollage.
	No.	Mds.	Rs.	No.	Mds.	Rs.
Rice and paddy	1,794	2,81,282	4,616	1,065	2,89,857	5,222
Jute	135	98,125	1,605	135	87,675	1,757
Firewood	115	59,210	1,030	107	76,810	1,209
Other articles	1,024	2,74,750	4,032	1,027	2,45,395	3,813
Total ...	3,068	7,16,367	11,283	2,354	6,99,737	12,001

Eastern Bengal State Railway.

Abstract of principal commodities carried over the Eastern Bengal State Railway during the month of November 1889, as compared with the same month of the previous year.

Staples.	1889.		1888.		Total.		Increase.	Decrease.
	Up.	Down.	Up.	Down.	1889.	1888.		
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
... ...	6,909	1,573	7,5	2,169	8,509	9,713		1,154
on, raw	51	459	73	74	510	146	364	
on twist and yarn—								
1.—European								
2.—Indian								
on piece goods—								
1.—European								
a. In bales and bundles ...	3,055	60	3,216	167	3,115	3,383		268
b In boxes								
2.—Indian—								
a—In bales and bundles ...								
b—In boxes ...								
ns—								
1. Rice	1,455	1,177	1,396	3,106	2,632	4,802		2,170
—Others	709	2,452	852	3,687	3,162	4,539		1,087
s and skins—								
.—Hides of cattle—								
a.—Dressed								
b.—Undressed	8	553	9	478	561	487	74	
.—Skins of sheep, &c.—								
a. Dressed								
b—Undressed								
—								
.—Raw—								
a. Screwed	... ...	7,366	...	6,104	7,366	6,104	1,262	
b.—Unscrewed	86	39,137	29	28,514	39,223	28,543	10,680	
—Gunny-bags and cloth ...	117	1,153	93	1,325	1,270	1,118		148
ls—								
.—Copper, unwrought								
—Brass, unwrought ...								
.—Brass and copper, wrought ...	926	78	932	86	1,004	1,018		14
.—Iron								
.—Tin								
.—Others								
	497	2	418	6	499	424	75	
.—Kerosine	199	40	143	53	239	196	43	
.—Others								
eds—								
—Linseed								
—Rape and mustard								
.—Til or gingelly	61	1,350	113	1,200	1,411	1,313	98	
.—Niger								
.—Castor								
.—Poppy								
—Others								
sions—	103	654	116	75	757	191	566	
.—Betelnuts	468	295	192	189	763	681	82	
.—Others	2,456	2,504	2,832	1,306	4,760	4,198	622	
ay plant and rolling-stock	5,011	18	3,202	22	5,029	3,224	1,805	
... ...								
—								
—Drained	625	92	503	173	717	676	41	
—Undrained								
—Foreign	... ...	1,045	6	1,584	1,045	1,590		545
—Indian								
—	315	236	94	76	551	170	381	
—Timber	1,437	...	1,434	3	1,437	1,437		
—Firewood	45	617	39	897	662	936		274
co								
her articles of merchandise—								
—Unmanufactured	2,810	1,092	2,720	1,655	3,902	4,375		473
—Manufactured	511	.....	498	2	511	500	11	
straw, and wooloo (C. & S.-E. Section) ...								
Total	27,888	62,988	26,762	53,242	90,876	80,004	16,459	6,587

Comparative Statement of traffic, Eastern Bengal State Railway, for November 1889.

DECREASES.

	Tons.
Coal	1,153
Due to sufficient stock for railway and flotilla purposes.	
Rice	2,170
The decrease is due to the failure of crops in Bengal.	

INCREASES.

	Tons.
Betel-nuts	566
Due to extensive despatches from Khoolna and C. P. T. Railway.	
Railway plant and rolling-stock	622
For construction, repair and renewal purposes.	
Salt	1,805
Due to favourable despatch from Chitpore.	
Tea	355
Due to favourable despatch from Jalpaiguri.	

CALCUTTA, *the 20th February* 1890.

F. P. QUINLAN,
Examiner of Accounts.

Bengal Central Railway.

Abstract of principal commodities carried over the Bengal Central Railway during the month of November 1889. *as compared with the same month of the previous year.*

STAPLES.	1889.		1888.		Total.		Increase.	Decrease.
	Up.	Down.	Up.	Down.	1889.	1888.		
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Coal	1,797	.....	2,303	10	1,797	2,313	.....	516
Cotton, raw	1	.....	3	.....	1	3	.....	2
Cotton twist and yarn—								
1.—European								
2.—Indian								
Cotton piece-goods—								
1.—European—								
a.—In bales and bundles	266	1	274	.....	267	274	.....	7
b.—In boxes								
2.—Indian—								
a.—In bales and bundles								
b.—In boxes								
Grains—								
2.—Rice	201	21	7	211	222	218	4	.....
5.—Others	49	15	32	199	64	231	.....	167
Hides and skins—								
1.—Hides of cattle—								
a.—Dressed								
b.—Undressed								
2.—Skins of sheep, &c.—	.....	22	.....	17	22	17	5	.....
a.—Dressed								
b.—Undressed								
Jute—								
1.—Raw—								
b.—Unscrewed	.....	1,802	.....	2,611	1,802	2,611	.....	809
2.—Gunny bags and cloth	2	.....	5	.....	2	5	.....	3
Metals—								
1.—Copper, unwrought								
2. Brass, unwrought								
3.—Brass and copper, wrought								
4.—Iron	25	18	34	18	43	52	.....	9
5.—Tin								
6.—Others								
Oils—								
2.—Kerosine	114	.....	80	.....	114	80	34	.....
3.—Others	74	.....	62	.....	74	62	12	.....
Oilseeds—								
1.—Linseed								
2.—Rape and mustard								
3.—Til or gingelly								
4.—Niger	16	69	58	78	85	136	.....	51
5.—Castor								
6.—Poppy								
7.—Others								
Provisions—								
2.—Betel-nuts	.....	651	2	81	651	83	568	.....
3.—Others	21	8	14	5	29	19	10	.....
Railway plant and rolling-stock	10	28	45	36	38	81	.....	43
Salt	301	.....	163	.....	301	163	138	.....
Sugar—								
1.—Drained	8	63	14	140	73	103	.....	90
2.—Undrained								
Wood—								
1.—Timber	.....	.....	10	11	.....	21	.....	21
2.—Firewood								
Tobacco	26	19	25	6	45	31	14	.....
All other articles of merchandise—								
1.—Unmanufactured	272	107	296	207	379	503	.....	124
2.—Manufactured								
Total ...	3,183	2,826	3,427	3,039	6,009	7,066	785	1,842

Comparative Statement of traffic, Bengal Central Railway, for November 1889.

INCREASES.

	Tons.
Betel-nuts	568
Due to favourable market.	
Salt	138
Due to favourable despatch from Chitpore.	

DECREASES.

	Tons.
Coal	516
Due to sufficient stock for railway and flotilla purposes having been in hand.	
Jute	809
Due to dullness of the market on account of previous year's crop coming in earlier.	

CALCUTTA, *the 20th February* 1890.

F. P. QUINLAN,
Examiner of Accounts.

Nalhati State Railway.

Statement showing Increases and Decreases in tonnage of Staples carried over the Nalhati State Railway during the month of January 1890, *as compared with the same month of the previous year.*

Staples.	1889.		1890		Total.		Increase.	Decrease.
	Up.	Down.	Up.	Down.	1889.	1890		
	Tons	Tons.	Tons.	Tons.	Tons	Tons.	Tons.	Tons.
Coal	794	.....	757	.....	794	757	.....	37
Cotton, raw	12	.....	14	.....	12	14	2	.....
Cotton piece-goods—								
1.—European	42	.....	18	1	42	19	.....	23
Grains—								
2.—Rice	38	1,148	98	647	1,186	745	.....	441
4.—Others	30	71	25	37	101	62	.....	39
Hides and skins—								
1.—Hides of cattle—								
a.—Dressed	.....	4	.....	7	4	7	3	.....
b.—Undressed	.....	1	.....	.....	1	.....	.....	1
Jute—								
1.—Raw	.....	22	.....	17	22	17	.....	5
2.—Gunny-bags and cloths	24	4	12	4	28	16	.....	12
Leather, manufactured	5	.....	6	.....	5	6	1	.....
Liquors—								
1.—Beer	8	.....	.....	.....	8	.....	.....	8
1.—Wines	1	.....	.....	.....	1	.....	.....	1
Metals—								
2.—Iron	3	.....	15	.....	3	15	12	.....
4.—Others	10	4	8	4	14	12	.....	2
Oils—								
1.—Castor	4	1	1	.....	5	1	.....	4
2.—Kerosene	2	1	1	.....	3	1	.....	2
3.—Others	10	.....	8	.....	10	8	.....	2
Oilseeds—								
3.—Mustard and rape	74	.....	28	.....	74	28	.....	46
6.—Others	6	.....	.....	.....	6	.....	.....	6
Provisions—								
1.—Ghee	3	.....	9	.....	3	9	6	.....
2.—Dried fruits and nuts	2	.....	2	.....	2	2	.....	.....
3.—Others	73	.....	40	.....	73	40	.....	33
Paper and pasteboard	1	.....	.....	.....	1	.....	.....	1
Railway plant and rolling-stock	77	9	55	13	86	68	.....	18
Salt	30	1	24	1	31	25	.....	6
Silk, raw—								
2.—Indian	13	23	62	36	36	98	62	.....
Silk piece-goods—								
2.—Indian	.....	3	2	4	3	6	3	.....
Stone and lime	.....	.....	6	.....	.....	6	6	.....
Sugar—								
1.—Drained	24	.....	15	.....	24	15	.....	9
2.—Undrained	24	.....	92	.....	24	92	68	.....
Tobacco	.....	3	1	.....	3	1	.....	2
Timber	3	.....	4	.....	3	4	1	.....
All other articles of merchandise	75	17	148	9	92	167	75	.....
Total	1,388	1,312	1,451	799	2,700	2,241	239	708

Increase.

	Tons.
Metals—	
(2) Iron	12
This increase is due to greater demands.	
Silk, raw—	
(2) Indian	62
This increase is due to greater import of tussur cocoons from Raniganj district.	
Sugar—	
(2) Undrained	68
Due to greater import owing to higher rate.	

Decrease.

	Tons.
Coal	37
Due to previous stock not being exhausted.	
Cotton, piece-goods—	
(1) European	23
Due to previous stock not being exhausted.	
Grains—	
(2) Rice	441
Due to less export from intermediate stations, owing to less demand in North-Western Provinces.	
(4) Others	39
Due to less export of *kalie* this year owing to the failure of the crops.	
Jute—	
(2) Gunny-bags and cloths	12
Due to less export of rice.	
Oilseeds—	
(2) Mustard and rape	46
Less imported, bazar being dull.	
Provisions—	
(3) Others	33
Due to potatoes being carried this year by boats.	
Railway plant and rolling-stock	18
Less railway materials carried during the month.	

R. G. MOOKERJEE,
Manager, Nalhati State Railway.

Weekly Return of Traffic Receipts on Indian Railways.

EAST INDIAN RAILWAY.

Approximate Return of Traffic for week ended 15th February 1890, on 1,525½ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	255,058	3,05,880 1 0	27,70,975 0	6,48,315 10 0	21,086 15 0	9,75,282 10 0	66,605½	93,399½	160,004
Or per mile of railway	....	200 8 2	.....	424 15 9	13 13 2	639 5 1	.....	.....	....
For previous 6 weeks of half-year	1,470,051	16,67,706 6 0	1,13,01,949 20	32,94,693 1 0	1,11,723 13 0	50,74,123 4 0	379,707½	500,217½	879,925
Total for 7 weeks	1,725,109	19,73,586 7 0	1,40,72,924 20	39,43,008 11 0	1,32,810 12 0	60,49,405 14 0	446,315	593,617	1,039,930
COMPARISON.									
Total for corresponding week of previous year	281,232½	3,09,550 12 0	28,82,673 10	6,25,084 5 0	17,727 0 7	9,52,362 10 7	65,644	98,801	164,44
Per mile of railway corresponding week of previous year	.....	202 14 8	.....	409 12 2	11 9 11	624 4 9	.....	.....	....
Total to corresponding date of previous year	1,708,439½	20,04,195 9 5	1,91,28,461 0	41,80,783 12 3	1,04,646 10 0	62,89,625 15 8	445,447	667,903	1,113,34

Approximate Statement of gross receipts of the East Indian Railway, prepared in accordance with Public Works Department Circular No. XXI. Railway, dated 23rd July 1883.

Receipts for week ending 16th February 1889.			Receipts for week ending 15th February 1890.			Total receipts from 1st April 1888 to 16th February 1889.			Total receipts from 1st April 1889 to 15th February 1890.			Total increase in 1890.	Total decrease in 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
1,525½	9,52,363	624	1,525½	9,75,283	639	1,525½	3,88,29,351	553	1,525½	3,85,65,889	550	.....	2,63,462

PATNA-GYA STATE RAILWAY

Approximate Return of Traffic for week ended 15th February 1890, on 57½ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	13,105	6,984 9 0	41,560 20	2,719 9 0	49 10 0	9,753 12 0	1,709	618	2,4
Or per mile of railway	229	122 1 9	725 30	47 8 9	0 13 10	170 8 4	.....	.....	
For previous 6 weeks of half-year	71,201	37,567 8 0	1,98,915 10	13,325 9 0	284 8 0	51,177 9 0	9,858	4,0[illegible]2	13,9
Total for 7 weeks	84,306	44,552 1 0	2,40,454 30	16,015 2 0	334 2 0	60,931 5 0	11,567	4,670	16,3
COMPARISON.									
Total for corresponding week of previous year	13,674	7,320 10 10	24,801 30	1,707 3 0	35 15 0	9,063 12 10	1,858	636	2,3
Per mile of railway corresponding week of previous year	239	127 15 9	433 30	29 13 6	0 10 1	158 7 4	.....	.....	....
Total to corresponding date of previous year	83,966	44,475 0 4	2,02,191 10	11,893 7 0	236 5 9	56,594 13 1	12,876	3,886	16,7

Approximate Statement of gross receipts of the Patna-Gya State Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 16th February 1889.			Receipts for week ending 15th February 1890.			Total receipts from 1st April 1888 to 16th February 1889.			Total receipts from 1st April 1889 to 15th February 1890.			Total increase in 1890.	Total decrease in 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
57½	9,004	156	57½	9,754	171	57½	4,25,353	163	57½	*4,43,024	168	17,671	.....

* Rs. 239 on account of difference between the approximate and audited figures to 31st December 1889.

TARKESSUR BRANCH RAILWAY.

Approximate Return of Traffic for week ended 15th February 1890, on 22¼ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	22,660	5,651 10 0	17,085 10	562 2 0	6 3 0	6,219 15 0	884	84	968
Per mile of railway ...	.....	254 0 1	.. ...	25 4 3	0 4 5	279 8 9	.....	.....	.....
For previous 5 weeks of half-year	113,202	27,579 7 0	73,128 0	2,569 8 0	41 10 0	30,190 9 0	5,000	397	5,406
Total for 6 weeks ...	135,862	33,231 1 0	90,213 10	3,131 10 0	47 13 0	36,410 8 0	5,893	481	6,374
Comparison.									
Total for corresponding week of previous year	25,834	6,713 13 2	9,648 10	342 2 0	3 0 0	7,058 15 2	896	72	968
Per mile of railway corresponding week of previous year ...	.....	301 11 11	.....	15 6 0	0 2 2	317 4 1	.....	.....	.....
Total to corresponding date of previous year	137,350	34,026 15 6	92,118 20	2,163 3 0	44 15 9	37,135 2 3	6,055	435	6,490

Approximate Statement of gross receipts of the Tarkessur Branch Railway, prepared in accordance with Public Works Department Circular No. XXI, Railway, dated 23rd July 1883.

Receipts for week ending 16th February 1889.			Receipts for week ending 15th February 1890.			Total receipts from 1st April 1888 to 16th February 1889.			Total receipts from 1st April 1889 to 15th February 1890.			Total increase in 1890.	Total decrease in 1890.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
22¼	7,059	317	22¼	6,220	280	22¼	2,44,017	235	22¼	*2,40,083	235	.....	3,934

* Deducted Rs. 324 on account of difference between the approximate and audited figures to 31st December 1889.

EASTERN BENGAL STATE RAILWAY.

(Including N. B., Dacca, K. and D., and Assam-Behar Sections.)

Approximate Return of Traffic for week ended 8th February 1890, on 747 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated), including steam-boat.	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week... ...	213,500	93,950 0 0	5,53,390 0	1,00,190 0 0	19,350 0 0	2,13,790 0 0	23,147	28,165	51,312
Per mile of railway ...	286	126 0 0	741 0	134 0 0	*3 0 0	283 0 0	.....	.....	.....
For previous 5 weeks of half-year	704,290	3,54,930 0 0	20,96,080 0	6,67,540 0 0	84,010 0 0	11,06,480 0 0	105,124	165,605	270,729
Total for 6 weeks ...	917,790	4,48,880 0 0	25,49,470 0	7,68,030 0 0	1,03,360 0 0	13,20,270 0 0	128,271	193,770	322,041
Comparison.									
Total for corresponding week of previous year	177,242	81,899 0 0	4,30,483 0	67,967 0 0	16,673 0 0	1,66,537 0 0	22,670	23,786	46,456
Per mile of railway corresponding period of previous year ...	263	122 0 0	640 0	101 0 0	*1 0 0	224 0 0	.....	.....	.....
Total to corresponding date of previous year	832,011	4,20,263 0 0	28,57,243 0	5,90,453 0 0	94,830 0 0	11,05,546 0 0	125,688	159,323	285,011

* Excluding steamer earnings.

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Eastern Bengal State Railway.

Receipts for week ending 9th February 1889.			Receipts for week ending 8th February 1890.			Total receipts from 1st April 1888 to 8th February 1889.			Total receipts from 1st April 1889 to 9th February 1890.			Total increase in 1889-90	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
673	1,66,537	247	747	2,13,790	286	673	93,47,035	309	726	*99,46,505	305	5,98,570	

* Audited up to week ending 14th December 1889.

BENGAL CENTRAL RAILWAY.

Approximate Return of Traffic for week ended 8th February 1890, *on* 125 [illegible]

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	36,870	11,520 0 0	57,310 0	3,200 0 0	100 0 0	[illegible]	3,736	1,936	5,672
Or per mile of railway	295	92 0 0	458 0	25 0 0	1 0 0	118 0 0	.....	.....	.....
For previous 5 weeks of half-year	123,330	48,030 0 0	2,01,240 0	12,300 0 0	360 0 0	61,590 0 0	17,078	8,852	25,930
Total for 6 weeks ...	160,200	60,450 0 0	2,58,550 0	15,500 0 0	460 0 0	76,410 0 0	20,814	10,788	31,602
Comparison.									
Total for corresponding week of previous year	34,230	10,017 0 0	58,308 0	2,070 0 0	64 0 0	13,051 0 0	3,739	1,937	5,676
Per mile of railway corresponding period of previous year ...	274	80 0 0	466 0	24 0 0	.....	104 0 0	.....	.....	.....
Total to corresponding date of previous year	167,136	54,022 0 0	2,78,341 0	13,638 0 0	3,739 0 0	71,399 0 0	21,374	11,675	32,449

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Bengal Central Railway.

Receipts for week ending 9th February 1889.			Receipts for week ending 8th February 1890.			Total receipts from 1st April 1888 to 9th February 1889.			Total receipts from 1st April 1889 to 8th February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
125	13,051	104	125	14,830	118	125	6,17,554	110	125	*6,46,615	115	29,061	.....

* Audited up to week ending 14th December 1889.

DACCA STATE RAILWAY.

Approximate Return of Traffic for week ended 8th February 1890, *on* 86 *miles open.*

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. S.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week	16,000	6,380 0 0	24,720 0	2,700 0 0	210 0 0	9,290 0 0	2,482	794	3,276
Or per mile of railway	186	74 0 0	287 0	31 0 0	3 0 0	108 0 0	.....	.....	.....
For previous 5 weeks of half-year	78,230	28,370 0 0	1,61,950 0	16,340 0 0	950 0 0	45,660 0 0	11,336	4,120	15,456
Total for 6 weeks ...	94,230	34,750 0 0	1,86,670 0	19,040 0 0	1,160 0 0	54,950 0 0	13,818	4,914	18,732
Comparison.									
Total for corresponding period of previous year	14,552	4,510 0 0	9,378 0	1,082 0 0	448 0 0	6,040 0 0	2,482	622	3,104
Per mile of railway corresponding period of previous year	169	52 0 0	109 0	13 0 0	5 0 0	70 0 0	.....	.....	.....
Total to corresponding date of previous year	88,256	26,602 0 0	69,020 0	7,418 0 0	1,138 0 0	35,158 0 0	14,209	3,561	17,770

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Dacca State Railway.

Receipts for week ending 9th February 1889.			Receipts for week ending 8th February 1890.			Total receipts from 1st April 1888 to 9th February 1889.			Total receipts from 1st April 1889 to 8th February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
86	6,040	70	86	9,290	108	86	2,58,632	67	86	*3,39,872	88	81,240	.....

NALHATI STATE RAILWAY.

Approximate Return of Traffic for the week ending 15th February 1890, on 27¼ miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic.		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs A. P.			
Total traffic for the week ...	76	1,244 0 0	12,188 0	861 0 0	19 0 0	2,124 0 0	509	254	763
Or per mile of railway ...	131	46 0 0	447 0	31 0 0	1 0 0	78 0 0	.....	.....	.....
For previous 5 weeks of half-year	17,164	5,971 0 0	76,409 0	4,677 0 0	80 0 0	10,728 0 0	2,836	1,415	4,251
Total for 6 weeks	20,740	7,215 0 0	88,597 0	5,538 0 0	99 0 0	12,852 0 0	3,345	1,669	5,014
COMPARISON.									
Total for corresponding week of previous year ...	3,513	1,322 0 0	12,938 0	857 0 0	8 0 0	2,187 0 0	509	581	1,090
Per mile of railway corresponding week of previous year ...	129	49 0 0	475 0	31 0 0	.....	80 0 0	.....	.....	.....
Total to corresponding date of previous year	21,867	8,235 0 0	1,05,802 0	5,774 0 0	105 0 0	14,114 0 0	3,417	3,855	7,272

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Nalhati State Railway.

Receipts for week ending 16th February 1889.			Receipts for week ending 15th February 1890.			Total receipts from 1st April 1888 to 16th February 1889			Total receipts from 1st April 1889 to 15th February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	Rs.	Rs.
27¼	2,187	80	27¼	2,124	78	27¼	89,355	75	27¼	88,660	74	.....	695

TIRHOOT STATE RAILWAY.

Approximate Return of Traffic for the week ending 15th February 1890, on 273 miles open.

	Coaching Traffic.		Merchandise and Mineral Traffic		Other earnings (estimated).	Total earnings.	Traffic Train-miles run.		
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			Coaching.	Merchandise.	Total.
		Rs. A. P.	Mds. s.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
Total traffic for the week ...	46,417	20,995 0 0	3,83,234 0	38,391 0 0	4,275 0 0	63,661 0 0	5,923	9,545	15,468
Per mile of railway ...	170	76 0 0	1,221 0	141 0 0	3 0 0	220 0 0*	.....	.....	.....
For previous 5 weeks of half-year	288,752	1,27,560 0 0	13,72,237 0	1,55,158 0 0	28,476 0 0	3,11,494 0 0	35,484	48,767	84,251
Total for 6 weeks ...	330,169	1,48,555 0 0	17,05,471 0	1,93,849 0 0	32,751 0 0	3,75,155 0 0	41,407	58,312	99,719
COMPARISON.									
Total for corresponding week of previous year	51,957	21,688 0 0	1,37,119 0	12,989 0 0	3,694 0 0	38,371 0 0	5,094	6,204	12,198
Per mile of railway corresponding week of previous year ...	190	79 0 0	502 0	48 0 0	4 0 0	151 0 0*	.....	.....	.....
Total to corresponding date of previous year	270,414	1,03,406 0 0	9,14,397 0	85,162 0 0	21,414 0 0	2,09,982 0 0	37,900	37,407	75,307

* Steam-boat earnings excluded in calculating "Total earnings per mile of Railway."

FINANCIAL YEAR.

Approximate Statement of gross receipts of the Tirhoot State Railway.

Receipts for week ending 16th February 1889.			Receipts for week ending 15th February 1890.			Total receipts from 1st April 1888 to 16th February 1889.			Total receipts from 1st April 1889 to 15th February 1890.			Total increase in 1889-90.	Total decrease in 1889-90.
Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Receipts.	Per mile worked.	Mean mileage worked.	Total receipts.	Per mile worked per week.	Mean mileage worked.	Total receipts.	Per mile worked per week.		
	Rs	Rs.		Rs.	Rs.		Rs.			Rs.	155	4,02,000	.....
273	38,371	141	273	63,661	233	265·04	14,59,4[illegible]	[illegible]	273	18,62,0[illegible]			Rs.

DARJEELING-HIMALAYAN RAILWAY COMPANY, LIMITED.

	Rs.
Approximate earnings for week ending 25th January 1890	8,270
Corresponding period of 1889	8,450
Increase	20

	Rs. A. P.
Receipts per mile for week ending 25th January 1890	166 1 3
Corresponding p riod of 1889	165 11 0
Increase	0 6 3

Receipts from 1st to 25th January 1890	25,983
Corresponding period of 1889	24,788
Increase	1,195

DARJEELING-HIMALAYAN RAILWAY COMPANY, LIMITED.

	Rs.
Approximate earnings for week ending 1st February 1890	7,224
Corresponding period of 1889	8,180
Decrease	956

	Rs. A. P.
Receipts per mile for week ending 1st February 1890	141 10 4
Corresponding period of 1889	160 6 6
Decrease	18 12 2

Receipts from 1st January to 1st February 1890	33,207
Corresponding period of 1889	32,969
Increase	238

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APPENDIX TO

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 5, 1890.

PUBLIC WORKS DEPARTMENT,—MARINE.

NOTIFICATION.

No. 23 Marine, dated Calcutta, the 30th January 1890.

NOTIFICATION—By the Govt. of Bengal, P. W. Dept.

UNDER the powers conferred upon him by section 36 of the Indian Steam-ships Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to Engineers of sea-going steam-ships :—

Certificates of competency granted to persons who pass requisite examinations.

1. Certificates of competency will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose Examiners have been appointed, and arrangements have been made for holding the examinations periodically at the Port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint

Examinations continued till all the candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the candidates who have then presented themselves and whose names appear upon the Port Officer's list on the day of examination are examined.

Application how to be made.

3. The application for examination is to be made on Form Exn. 3, which must be filled up at the Port Office. The Form Exn. 3 properly filled in, together with the Candidate's Indentures of Apprenticeship, testimonials, and discharges, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials required.

4. Applicants will be required to produce, in addition to the usual Forms of Discharge, satisfactory testimonials as to sobriety, experience, ability, and general good conduct for at least the 12 months immediately preceding the date of application to be examined, and without producing them no person will be examined. If the service has been on shore, the testimonial must be signed by an Employer; if at sea, by the Master and Chief Engineer.

5. In cases where a testimonial from the Chief Engineer, or from the Master, is for any sufficient reason not obtainable, one may be submitted from the Superintending Engineer in place of that of the Chief Engineer, and one from the Managing Owner or Secretary or Chairman of a large Company in place of that of the Master, but in every such instance the testimonial must declare that the facts stated are in accordance with the reports made by the Chief Engineer or the Master, as the case may be, or else that the facts are within the writer's personal knowledge.

6. As such testimonials may have to be verified before the Candidate can be examined, it is desirable that they should be handed in, together with the Form Exn. 3, as early as possible.

Testimonials of Foreigners.

7. The testimonials of servitude of Foreigners and of British Seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits; and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificate as to age.

8. Should any doubt exist as to the age of a Candidate, he will be required to produce a Certificate of Birth or Baptism.

Foreigners to know English.

9. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel.

Verification of services, &c., by Articles.

10. Services which cannot be verified by proper entries in the Articles of the Ships in which the Candidates have served cannot be counted.

Service on a lake or river.

11. In addition to the required workshop time, service on a lake or river, in a steamer in which the aggregate piston area of the propelling engines proper amounts to at least 2,000 (two thousand) circular inches will be accepted towards qualifying a candidate to be examined for a certificate of competency as follows:—

Two months of river or lake service, in a capacity not lower than that of Third Engineer, may be deemed equivalent to one month of sea service, provided that,

For a Second Class Certificate, not less than three months of the qualifying service must be actual sea service, and that,

For a First Class Certificate, at least six months of the qualifying service must have been at sea in a grade not below that of Third Engineer, where an engineer of a lower grade is carried. During the last 18 months of this service the candidate must have been in possession of a Second Class Engineer's Certificate of competency.

Assistant Engineer.

12. Service entered upon a ship's Articles as having been performed in the capacity of Assistant Engineer must be supported by proof of the Candidate having acted as Second, Third, or Fourth Engineer, as the case may be.

Service in home or coasting trade.

13. The service required by the Regulations to qualify a candidate for examination is to be regarded as referring to service in the Foreign Trade only. Service in the Home or Coasting Trade must amount to at least half as much again as that required by the Regulations to make up for the time spent in Port, *e.g.*, for every twelve months' service under the Regulations, eighteen months' service in the Home or Coasting Trade will be required. In all cases the length of service is deemed to commence on the date of signing of the articles of agreement, and to end on the date of discharge.

Service as Engineer only accepted as qualifying service.

14. Service in the engine-room (afterwards referred to) for qualifying a candidate to be examined for a Second-class Engineer's Certificate must be only in those capacities which afford opportunities of obtaining practical experience as an engineer; and service in the capacity of fireman, stoker, donkeyman, greaser, winchman, labourer, engineer's steward, or any other capacity than that of engineer taking watch on engines and boilers for propelling will not be accepted

Service as Third and Fourth Engineer.

15. Service as Third and Fourth Engineer in Foreign-going steamers, where more than three or four engineers, as the case may be, are carried, their names being all entered on the Articles in their respective ratings, may be accepted equally with service as Second Engineer to qualify a Candidate for examination for a First-class Engineer's Certificate, provided he has, during the whole of such service, been in possession of a Second-class Engineer's Certificate (Imperial, or under Order in Council), and provided also that he was regularly in charge of a watch. In the case of Fourth Engineers, however, eighteen months of such service must be proved for every twelve months required by the Regulations.

16. Service in a capacity below that of Fourth Engineer cannot be accepted as qualifying for any class of certificate unless the testimonials of the candidate explicitly certify that during such service he has been taking regular watch in the engine-room, and that the Chief Engineer or Superintending Engineer considers him properly qualified by that experience to act as Chief Engineer of a Foreign-going steamer of 99 horse-power nominal. *In any case the applicant must prove that he has had the responsible charge of the engines or boilers on regular watch for at least twelve months of sea service, of which for not less than six months he must have been in charge of the propelling engines and rated on the articles not lower than Fourth Engineer.* Service below the grade of Fourth Engineer.

17. Having "responsible charge" will be understood to imply, in regard to the engines, that the applicant, for the time specified, was, on regular watch, the person responsible for carrying out the orders of the engine-room telegraph, and, in regard to the boilers, that he was, similarly for the period specified, the person responsible for regulating the feeds.

18. When the workshop service has been performed in a place *where steam-engines are not made*, and the class of work done is similar to that required in engine-making, the service may be accepted with an additional year in the engine-room; that is, three years' workshop service and two years in the engine-room, of which one year must have been at sea. The approval of the Government must be obtained in every such case before the authority to receive a certificate is issued by the Examiners. Workshop service.

19. When the workshop service has been performed in a place *where engines are made*, and the department in which the applicant has been principally engaged is not "*fitting*" or "*erecting*," if the nature of the service be such as is useful training for an Engineer, the Government may, on proper representation of the circumstances, see fit to accept the service as qualifying along with subsequent experience, but in every such case the applicant must prove additional engine-room service as required above. The approval of the Government must likewise be obtained.

20. If a candidate has served in the Engine Room with a Second-class Certificate in the capacity of a Second Engineer in Foreign-going Steam-Ships under 100 horse-power, or in Home Trade Passenger Steam-Ships, which are not required by law to carry a certificated Second Engineer, his service may be accepted without reference to the vessel's horse-power, provided he has been on the ship's articles as Second Engineer, and produces certificates of discharge as Second Engineer, for the required period. Service as Second Engineer where certificate not required

21. The Government may see fit to allow an applicant who, in consequence of service abroad, has been unable to obtain a Second-class Certificate, to be examined for a First-class Certificate, although he has not obtained a Certificate of the lower grade, provided he is able to satisfy them as to the satisfactory character of his services. First-class certificates without second.

22. In such cases (para. 21) or in cases where the candidate is already in possession of a Certificate of Service, should he fail to pass the examination for the higher grade, but passes the examination for the lower grade, he may receive a Certificate accordingly, but no part of the fee will be returned. Unsuccessful candidates may in certain cases receive certificates for inferior grade.

23. A candidate who under the above regulation (para. 21) has been permitted to be examined for a First-class Certificate without first obtaining a Second-class Certificate of Competency, and who fails in his examination in practical knowledge, may not be re-examined for a Certificate of the higher grade until he has served 12 months as Second Engineer with a Second-class Engineer's certificate of competency as required by the Regulations. Consequence of failure in such cases.

24. If the candidate fails altogether, *i.e.*, both in the examination for the lower as well as for the higher grade of Certificate (para. 21), he may be re-examined for a *Second-class Certificate only*, subject to the usual regulations relating to failure.

If after passing examination services are found to have been insufficient.

25. If after a Candidate has passed his Examination it is discovered on further investigation, *e.g.*, by verification on the part of the Port Officer, that his services are insufficient to entitle him to receive a Certificate of the grade for which he has passed, it will not be granted to him; but if the Government are satisfied that the error in the calculation of his services did not occur through any fault or wilful misrepresentation on his part, the Certificate may be issued to him, or he may be allowed to go up for re-examination without payment of further fee, when he has performed the amount of service in which he was deficient as the Government may direct.

Certificate of lower grade may be granted on certain conditions.

26. If, in such a case, the applicant's services are sufficient to entitle him to receive a Certificate of a lower grade, provided as aforesaid he has not wilfully misrepresented the amount of his services, an Inferior Certificate may be granted to him, and the difference between the fee paid by him for the Superior Certificate and the fee payable for the Inferior Certificate may be placed to his credit.

May have to be re-examined for certificate of higher grade.

27. In such a case when the applicant has by further service made up the time in which he was found to be short, he may be required, before he can receive the higher certificate, to be re-examined in all the subjects.

Qualifications for Certificates of Competency.

Qualification of candidate for Second-class Engineer's Certificate.

28. SECOND-CLASS ENGINEER.—A candidate for a Second-class Engineer's certificate must be not less than 21 years of age;

(*a*) He must have served an apprenticeship to an Engineer for three years in England or five in India at least, and prove that during the period of his apprenticeship he has been employed on the making and repairing of engines:—Or if he has not served an apprenticeship, he must prove that for not less than three years in England or five in India he has been employed as a journeyman mechanic in some factory or workshop* on the making or repairing of engines.† In either case he must also have served one year at sea in the Engine Room as an Engineer on regular Watch in the Foreign, Home or Coasting Trade‡; or

(*b*) He must have served at least four years at sea in the Engine Room as an Engineer on regular Watch in the Foreign, Home or Coasting Trade.

(*c*) He must be able to give a description of boilers, and the methods of staying them, together with the use and management of the different valves, cocks, pipes, and connections.

(*d*) He must understand how to correct defects from accident, decay, &c., and the means of repairing such defects.

(*e*) He must understand the use of the barometer, thermometer, and salinometer, and the principles on which they are constructed.

(*f*) He must state the causes, effects, and usual remedies for incrustation and corrosion.

(*g*) He must be able to state how a temporary or permanent repair could be effected in case of derangement of a part of the machinery, or total break-down.

(*h*) He must write a legible hand, and understand the first five rules of arithmetic, and decimals, and their application to questions about consumption of stores, and full capacities of tanks and bunkers, the duty of pumps, and the direct strains in engines and boilers.

(*i*) He must be able to pass a creditable examination as to the various constructions of paddle and screw engines in general use; as to the details of the different working parts, external and internal, and the use of each part.

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* No period of service in a drawing office can be allowed to count for more than six months workshop time.

† These may be either land or marine engines.

‡ *See* paragraph 18 as to service in Home or Coasting Trade.

29. FIRST-CLASS ENGINEER.—A candidate for a First-class Engineer's Certificate must be not less than 22 years of age. Qualification candidate for First-class Engineer's certificate.

30. In addition to the qualification required for a Second-class Engineer—

(*a*) He must either possess, or be entitled to, a First-class Engineer's certificate of service; or, in the event of his not being so possessed or entitled, he must have served for one year at sea as Second Engineer with a Second-class Engineer's Certificate of Competency, or for two years at sea as Second Engineer with a Second-class Engineer's Certificate of Service: or having served one year at sea as Second Engineer with a Second-class Engineer's certificate of Service, he must show, in addition, at least six months' service as Chief Engineer in a vessel required by law to carry at least one Engineer holding a certificate. (*See also paragraph* 15 *as regards service as Third and Fourth Engineer.*)

The Examiner should therefore be satisfied that an applicant for a First-class Engineer's Certificate has not only been *in possession* of a Second-class Certificate for the periods above stated, but that he has actually *served* for such periods in the Engine Room at sea with a Second-class Certificate in the capacities referred to, and that his name has been entered in the articles of agreement accordingly. (*See also para.* 21.)

(*b*) He will be required to make an intelligible hand sketch, or a working drawing of some one or more of the principal parts of a steam-engine; and to mark in, without a copy, all the necessary dimensions in figures, so that the sketch or drawing could be worked from.*

(*c*) He must also be able to take off and calculate indicator diagrams.

(*d*) He must be able to calculate safety-valve pressures and the strength of the boiler shell, stays, and riveting.

(*e*) He must be able to state the general proportions borne by the principal parts of the machinery to each other, and to calculate the direct stress, the torsional stress, and the bending stress in round bars, and the direct stress and the bending stress in rectangular bars with given loads.

(*f*) He must be able to explain the method of testing and altering the setting of the slide valves, and to sketch about what difference any alteration in the slide valve will make in the indicator diagram, and also the method of testing the fairness of shafts and of adjusting them.

(*g*) He must be conversant with surface condensation, superheating, and the working of steam expansively.

(*h*) His knowledge of arithmetic must include the mensuration of superficies and solids and the extraction of the square root, and the application of these rules to questions relating to the power, duty, and economy of engines and boilers, and to the stresses in rods, shafts, and levers of the engine.

Service in the Royal Navy.

31. Engineers and Assistant Engineers of the Royal Navy are at liberty to apply for Certificates of Service, and to be examined for Certificates of Competency in the Mercantile Marine; but they must submit their applications in the manner directed by the Lords Commissioners of the Admiralty. Engineers.

32. As regards the grades of Certificates of Competency for which Officers of the Royal Navy can be examined, the rule is—"First-class Assistant," or "Assistant Engineers" of the Royal Navy may be examined for Second-class Engineers' Certificates of "Competency"; "Engineers" of the Royal Navy for First-class Certificates of Competency. Grades.

* *See* Appendix B.

Temporary service in the Royal Navy.

33. Temporary active service as Engineer in the Royal Navy counts in applications for Certificates of Competency in the same way and to the same extent only as in the case of the service of Mercantile Marine Engineers, that is to say, so much of the applicant's time as is spent in active service at sea, or in a ship commissioned for sea service, counts as "sea service;" and so much of the applicant's time as is spent in active service on boardship in harbour, and not commissioned for sea, counts as workshop time—*See* paragraph 28, sub-section (*a*).

Engineer Artificer.

34. Service performed in the capacity of Engineer Artificer may count to qualify a Candidate for examination for a Second-class Engineer's Certificate of Competency in the Mercantile Marine. If the service has been on shore, it will count only as workshop time. If in the Engine Room at sea, the Candidate must prove that during such service he had charge of an Engine Room watch.

Fees.

Fees to be paid by applicants for examination. (Exn. 17.)

35. Candidates for examination, in making their Application on Form Exn. 3, will be required to pay the Examination fees before any step is taken, whether by inquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them, but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be.

36. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

37. If a candidate fails in his examination, *no part of the fee he has paid will be returned to him.*

38. The fees are as follow:—

Second-class Engineer's Certificate ...	Rs.	12
First-class Engineer's Certificate ...	„	24
First-class Engineer's Certificate if candidate is already in possession of a Second-class Certificate of competency granted by the Board of Trade, or by the Government of a British possession under Section 8 of the Merchant Shipping (Colonial) Act, 1869 ...	Rs.	12
Renewal of any certificate	„	5

General Rules as to Examinations.

Candidates not to take books, &c., into examination room.

39. All books necessary for the use of candidates under examination will be provided by the Government, and applicants are not permitted to take into the examination room any book, paper, document, or memoranda of any description whatever.

40. Candidates will be allowed in the time allotted to cancel any part of their work, and when required additional papers will be supplied by the Examiners, but they will not be allowed to work out the problems on a slate or on waste paper. The additional sheets must be attached to, and form part of, the examination papers.

41. Candidates for First-class Certificates have to pass an examination in Rough Working Drawing, which may, at the candidates' option, be either hand sketches clearly dimensioned and complete in the necessary *views* and *sections*, or drawings to a scale. Drawing boards and T squares will be provided by the Government, but the applicants will have to bring with them any drawing instruments they may require.*

* *See* Appendix B.

42. In the event of any candidate being discovered copying from another, or affording any assistance or giving any information to another, or communicating in any way with another during the time of examination, he will be regarded as having failed in his examination, and will be turned back for three months, in the same manner as if he had failed in the practical part of the examination ; and no part of the fees he may have paid for examination will be returned to him. This penalty also applies to any breach of paragraph 34. Punishment for breaking rules.

43. If a candidate leaves the room before answering any question which has been given to him, he cannot afterwards be permitted to answer it, but the Examiners may substitute other data or another question. Leaving examination room.

44. All applicants presenting themselves for examination will be required to give written answers to ten questions selected from Form Exn. 15*a*.,* "Elementary Questions for the first examinations of Engineers for certificates of competency, and of Masters and Mates for certificates in steam." These questions are intended to furnish a record to some extent of the candidate's knowledge at the time of his examination, and also to induce the candidates to pay more attention to their handwriting and spelling. Questions from Form Exn. 51*a*.

45. The Form Exn. 15*b*., on which these answers will be written, contains also some questions as to the experience of the applicant, to be answered by him in writing.

46. Examiners may add to their *vivâ voce* questions on the practical management of steam-engines and boilers any of those contained in Exn. 15*a*.

47. If at the expiration of the time allowed the candidate has worked out and answered correctly the whole of the questions set to him, and given satisfactory answers in the *vivâ voce* examination, he will be declared to have passed.

48. If at the expiration of the time allowed he has not worked out the whole of the questions set to him, but if the result of the *vivâ voce* examination taken in connection with the answers to such of the questions as he has worked out is sufficient to satisfy the Examiners that the applicant is competent to take charge of engines of 100 nominal horse power or upwards, he will be declared to have passed.

49 In other cases he will be declared to have failed.

50. A report of the examination, and the examination papers, will be forwarded to the Port Officer on the Form (Exn. 15). Exn. 15.)

51. If the candidate passes, he will receive the Form Exn. 16, upon which the Government will issue the certificate to the candidate, whose testimonials, &c., will be returned at the same time. Notification of having passed will be given to successful candidates. (Exn. 16.)

Failure.

52. If the applicant fails in practical knowledge, he may not present himself for re-examination until he can produce proofs of THREE MONTHS' further service at sea as Engineer from the date of failure. If he fails in arithmetic or drawing only, he may come up again at any time.

General.

53. Certificates of Competency shall be made and issued by the Government in the forms hereunto annexed.

54. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

55. No application from the holder of a certificate granted by the Government of any other British Possession or by the Board of Trade to be examined for a certificate of the same legal value shall be entertained.

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* *See* Appendix A.

APPENDIX A.

Form Exn. 15a.

Elementary Questions for the First Examinations of Engineers for Certificates of Competency and of Master and Mates for certificates in steam.

TO ENGINEER EXAMINERS.

EXAMINERS will require all candidates to fill up a form, Exn. 15*b*., of which a copy is enclosed, and they will forward the same to the Port Officer for transmission to the Government along with the report of the examination.

It is intended to issue questions of a more advanced character for first-class candidates, but in the meantime the questions for both classes of Engineers and also for Masters and Mates passing a Voluntary Examination in steam will be taken from the same book of "Elementary Questions," and candidates for first-class certificates are expected to show their superiority by giving answers more complete than those of the other candidates.

The arithmetical questions for Engineers and the *viva voce* examinations for all candidates will be continued as heretofore, and failure in the elementary questions will be treated as failure in arithmetic.

The numbers of the questions for each examination will be selected by the examiners, and they are not to be communicated to the candidate until his examination commences.

Masters and Mates may cancel questions A, B, and C, but they should fill up the form for questions D, E, F, and G, as evidence of their practical knowledge.

Exn. 15b.

Port | Class for which examined

Date | Candidate's name

A. Where and how long did you serve in works at the making or at the repairing of Engines, and in what capacities?

B. How long have you served as fireman or trimmer?

C. How long have you served in the engine-room at sea, and in what capacities?

D. With what descriptions of Engines have you served at sea—Paddle or Screw or both, Jet Condensing, Surface Condensing, or Non-condensing Engines, Compounds, Trunks, Inverted Cylinders, or Horizontal Engines? What size were the engines?

E. With what descriptions of Boilers have you served at sea—Rectangular or Cylindrical, Wet-bottomed or Dry-bottomed, Multitubular, Sectional or Flue Boilers?

F. What Engine defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

G. What Boiler defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

For the questions to be answered on the following pages, *see* the book of Elementary Questions. The questions need not be written; only the answers to them.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

ELEMENTARY QUESTIONS.

1.

What parts of an engine are generally made of wrought-iron?

2.

What parts of an engine are generally made of cast-iron?

3.

For what parts of an engine is steel sometimes used?

4.

What parts of an engine are generally made of brass or gun-metal?

5.

Where is "white metal" sometimes used? On account of what property possessed by it is it adopted? What objection is there to its more general use?

6.

For what parts is Muntz metal sometimes used? Is it malleable? For what properties is it valued?

7.

What difference is there in the composition of cast-iron, of wrought-iron, and of steel?

8.

How can cast-iron, wrought-iron, and steel be distinguished from each other?

9.

What are the different properties of cast-iron, of wrought-iron and of steel?

10.

What is meant by the terms "breaking stress," "proof stress," "safe working stress"?

11.

What is the cohesive strength or breaking stress of good ordinary wrought-iron?

12.

Tempering steel: how is it done, and in what order do the colours come?

13.

What is case-hardening?

14.

Which of the common metals or alloys can be forged, and which of them are brittle or "short"?

15.

What is meant by "welding"? Which of the common metals can be welded?

16.

The expansion of metals by heat: give examples of this in the engine and in the boiler.

17.

In the construction of cylindrical marine boilers, for what parts have the plates to be worked hot? When the material is steel, what precautionary treatment of these plates is afterwards necessary?

18.

What is double riveting? In what parts of cylindrical marine boilers is double riveting employed? In which of the shell seams is it most necessary?

19.

What is "caulking," and how are seams prepared for caulking?

20.

Describe the different ways of fastening the ends of the main stays of a boiler. What are the merits of, or objections to, the different plans?

21.

What strain per square inch is allowed on boiler stays?

22.

Describe a riveted stay, and state where such stays are commonly used.

23.

Where are thin plates to be looked for in a boiler as it wears, and how is the thinness to be detected?

24.

How are boiler tubes fixed? What are "stay tubes," and how are they secured?

25.

Where is it generally that boiler tubes leak? How is this defect raired? What are the causes of this leaking?

26.

What are the causes of cracked tube plates? Where are the cracks situated? How are they repaired?

27.

What is the difference between a "dry uptake" and a "wet uptake"? Which requires most repair? Why? Where have you seen a wet uptake?

28.

What is a superheater? What is its construction? What valves are on it? There is sometimes a gauge glass on it; what is that for?

29.

What parts of a marine tubular boiler are first injured by shortness of water?

30.

Where are angle irons sometimes used in the construction of a boiler, and where are flanged plates used?

31.

Priming: to what causes is it attributed? What means are applied to prevent it? What evils may be produced by it?

32.

Funnel draught: what makes it? What checks it?

33.

Flame is sometimes seen at the top of the funnel: what causes this appearance? Is it beneficial or is it detrimental? Why so?

34.

A blast pipe: what is its construction? Where is it placed? For what is it used?

35.

How many bottom blow-off cocks are generally fitted to each boiler, and why are they so fitted?

36.

Blow-off cocks are sometimes fitted with a spanner guard: for what purpose is this? Describe how the guard is formed?

37.

Test cocks or water-gauge cocks: where are they placed? At what heights? Must the cocks themselves be at those heights? What provision is made for cleaning these cocks should they ever become choked? When there are no test cocks how is the height of the water ascertained?

38.

What is a dead-weight safety valve? Of what are the rubbing surfaces formed? How is a lock-up valve arranged to admit of lifting it or of turning it round, and to prevent adding to the weight?

39.

About what area of safety valve is now required by the Board of Trade? What area was formerly required, and on what ground has that been altered? What is the effect of suddenly opening a safety valve when steam is up? To about what extent do safety valves rise when blowing off without being eased by hand?

40.

Spring-loaded safety valves: what advantages have they that are not possessed by dead-weight valves? What are the disadvantages as compared with dead-weight valves?

41.

Of what pieces does a glass water gauge mounting consist? How does it act? Where is it placed? At what height? Is it liable to derangement? How is its working tested?

42.

Glass water gauges have sometimes pipe connections top and bottom: what is the object of this arrangement? Should there be cocks at the extremities of these pipes?

43.

Describe a Bourdon's steam gauge. Some gauges have an inverted syphon pipe below them: what is its use?

44.

Why is a small cock sometimes put on the pipe leading to a steam gauge? Where should it be placed, and what error might be made by omitting to use it?

45.

Do steam gauges indicate the total pressure of the steam, or only a portion of that pressure? What is the pressure measured from?

46.

What is meant by the salting of the boiler? How is this prevented? What is the density of ordinary sea water? How is the density ascertained? What is the difference between the formation of scale and the salting of the boiler? What is the maximum density at which boilers should be worked at sea?

47.

Scum cocks and pipes: how are they arranged? Where are they placed? At what height in the boiler? When are they used? When must they be shut? Neglect of these cocks lead to what dangers?

48.

Scale: of what does it consist? Where is it most objectionable? How is it removed? How is its formation prevented? What evil effects are produced by it?

49.

What is a salinometer? Of what does it consist? How does it act? How is it graduated? Can it be used at any temperature indiscriminately?

50.

What harm may be done through the check valve of one of a set of boilers being defective while under way? How would you work to avoid this harm?

51.

How is the leak from a split tube stopped in a boiler at sea? Describe the operation?

52.

What is the use of dampers? Where are they fitted? When should they be used?

53.

When there are no dampers fitted, what is used instead? What evil to the boiler is sometimes attributed to this? When the heating surfaces are clean does this occur?

54.

Describe the piston of a steam cylinder, with its different rings and their uses? There are generally round pieces let in flush on one side of a piston: what are they? How are these pieces fixed?

55.

Cylinder drain cocks: what is their use? There is sometimes a valve upon each cock: what purpose does it serve?

56.

Cylinder escape valves: of what do they consist? How protected? How regulated? When are they most needed? To what danger do they expose the Engineer? What precaution is sometimes used to obviate this danger?

57.

What is a compound engine? What different kinds are there for screw steamers, in respect to the number and arrangement of their cranks and cylinders? What is a triple expansion engine?

58.

What is link motion? What are some of its advantages? In modern engines for the screw propeller when there is no link motion, what takes its place?

59.

What is a separate expansion valve? Why is it not fitted to all engines? What effect has an expansion valve upon the starting and upon the reversing of the engine?

60.

What arrangement is applied to reduce the friction of a slide valve? To what is the friction due?

61.

Describe a loose eccentric; how does it act? In what engines is the loose eccentric still employed?

62.

What is the travel of the eccentric rod? How is it measured on the eccentric? What is the travel of the slide valve when the link motion is in mid gear, and the engine still moving?

63.

What are "double beat valves"? Why are they not generally used for safety valves? Are they ever used instead of the slide valve? What objections are there to their use?

64

What is a circulating pump? Is it always worked by the main engine? Give an example from your last steamer of the three water temperatures generally noted by careful engineers?

65.

An air valve is sometimes fitted to a circulating reciprocating pump: what purpose does it serve?

66.

What is the difference between a bucket air-pump, a piston air-pump, and a plunger air-pump?

67.

Whether are double-acting air-pumps made with plungers, with pistons, or with buckets?

68.

What is an air-pump trunk? When is it necessary? How is it attached to the bucket?

69.

What class of air-pump requires both foot and delivery valves, and in what other class can either of these valves be in some cases dispensed with?

70.

When under way, when the air-pump bucket is at the top of its stroke, at what height is the water in the condenser?

71.

With a surface condenser and a single acting air-pump, what is the effect of a leaky foot valve, and what is the effect of a leaky bucket when there is also a foot valve?

72.

Air-pump pet cock or valve: where is it placed? How does it act? What is its object? Does it in every case reduce the effective capacity of the pump? Is it equally applicable to double-acting pumps?

73.

At what temperature is the hot well worked? What is the effect of higher temperatures? What is the effect of lower temperatures? What limits the lowness of temperature? Has a very low temperature any disadvantages?

74.

Bilge injection with common condensers: what are the fittings required? When is it used? What precautions are necessary in using it?

75.

When surface condensers are used, what takes the place of the bilge injection? To what is the connection made? How is its valve formed? Why is this necessary?

76.

What are the practical guides to the proper amount of opening of the inlet valve for the circulating pump?

77.

Feed-pump pet cock or valve: where is it placed? What is its use? How does it act? Is it always a necessary fitting?

78.

What are some of the ways of fastening the ends of surface condenser tubes? About what size and about what thickness are condenser tubes? What parts of a surface condenser are made of brass?

79.

What is a blow-through valve or cock? To what is it attached? There is sometimes a valve that, when opened, admits steam from the slide valve casing to the exhaust port; what is its use? To which cylinder is it fitted?

80.

What is a snifting valve? What is its use? Where is it placed? Can it be placed too high? Can it be placed too low? At what height should it be placed? Was there one in your last steamer; if so, where was it? Why are snifting valves generally omitted now?

81.

What connections are generally fitted to the donkey-pump, and to what services can it be applied?

82.

When the engines are stopped with steam up, what are to be shut and what are to be opened?

83.

How is an engine heated up before starting? What precautionary examinations are made before starting?

84.

What is an interceptor or catch-water? Where is it fixed; what is its construction; how does it act; and what attention does it require?

85.

Describe an air-pump bucket, with its valve or valves and its packing? Of what are the valves generally made?

86.

Of what materials are air-pump rods made? Why so?

87.

What is the racing of the engine? When does it occur? What danger attaches to it? What is done to prevent it?

88.

What are marine governors? What is their general construction? How do they act?

89.

What is meant by the "pitch" of a screw propeller? How is it measured?

90.

Explain the difference between a "right hand" and a "left hand" propeller, and state how each of them revolves.

91.

What is the slip of a screw propeller? How is its amount expressed in figures?

92.

Which of the valves about engines and boilers have to be worked by hand, which of them work self-actingly, and which are worked by the motion of the engine?

93.

Why is soda sometimes put into a boiler, and how is it put in when under way? What is the kind of soda used?

94.

Tallow cups for cylinders were sometimes made with two small cocks, or with only one small cock, or with one large hollow plug cock, or with one small cock and a valve; which of these is suitable for a high-pressure cylinder, and which for the cylinder of a condensing engine? Describe how the cup with only one small cock is used? What is now generally used instead of these? How has this change come about?

95.

Does a cylinder-escape valve, self-acting, allow all the water to escape; if not, how much is left in the cylinder?

96.

What is a "Steam Lubricator" (sometimes called an Impermeator)? Explain its action? To what part of the engine is it connected? Whether will throwing cold water over it make it work faster or slower? Describe the one used in your last steamer?

97.

A common paddle wheel: of what is the centre made? Of what are the arms formed? What is the form of the bolts which attach the floats to the arms? How are the arms attached to the centres?

98.

Why have some paddle wheels one or more cast-iron floats in each wheel? With what engines are these most required? At what part of the circumference are they placed?

99.

Why are paddle wheel floats sometimes made of different breadths in the same wheel? With what description of engine is this most needed? Where are the broad floats placed, and where are the narrow floats placed in the circumference of the wheel?

100.

What difference is there between a radial paddle wheel and one with feathering floats? What is the object of feathering floats? Are all the eccentric rods attached in the same way, and are they all of the same form?

101.

Whereabout is the centre of the eccentric of a paddle wheel with feathering floats placed? In that case are the feathering levers on the striking face or on the back of the float? When the paddle shaft has an outer bearing, how is the eccentric made?

102.

Of what materials are the working surfaces of a paddle wheel with feathering floats? Are they all lubricated? With what?

103.

What is a "Disconnecting Paddle Engine"? At what place is the disconnecting effected? How is it accomplished? In which of the cranks of a disconnecting engine are the crank pins fixed?

104.

Whether is link motion valve gear or the loose eccentric generally used for disconnecting paddle engines? For what steamers are disconnecting paddle engines frequently employed?

105.

What are expansion joints? Where are they necessary? What attention do they require? Of what should the working surfaces be made?

106.

What omission in the construction of expansion joints may lead to a serious accident when steam is first applied? How is this prevented in the construction of a steam trunion pipe for an oscillating engine?

107.

Describe an oil cup, with a syphon worsted? How is the worsted arranged? How is it cleaned? How far down the tube does it extend?

108.

Describe a thrust bearing; which of the surfaces wears? Why are there sometimes a number of oil tubes for one thrust bearing?

109.

What parts of a screw shaft are generally covered with brass? Why is this necessary? About what thickness is the brass?

110.

What is the stern tube or screw shaft pipe? Why is a pipe of such a length required? Of what is it made? How is it fixed at each end?

111.

What is a lignum vitæ bearing? How is the wood fitted? Where is such a bearing generally used?

112.

How is a screw propeller fixed on the shaft? What means are used to prevent its getting loose at sea?

113.

Where are sluice valves placed? What large sluice valve is there in almost all screw steamers? From what position should this valve be worked? Why so? What attention should it receive?

114.

With a condensing engine, what valves or cocks are on the skin of the ship in the engine-room and in the stokehole?

115.

What are the necessary fittings of a marine boiler?

116.

With a surface condensing engine, what cocks or valves are open some time before the engine is started so as to be ready for starting whenever the order is given?

117.

What is a steam jacket? What cocks are on it? In what engines are jackets most generally used? Do they require to be felted?

118.

What parts of an engine or its fittings should be felted or otherwise protected from radiation?

119.

What are the small cylinders sometimes fitted on the slide valve casing cover of vertical engines? Explain their action? To what are they connected by a pipe? Why so?

120.

Name the principal pipes in connection with the engines and boilers of a steamer, and state to what the ends of these pipes are connected?

121.

Through what cocks or valves, pipes and chambers does the water pass on its way from the sea inlet rose plate to the water space of the boiler, with a jet condenser?

122.

Through what cocks or valves, pipes and chambers does the circulating water of a surface condenser pass?

123.

Through what cocks or valves, pipes and chambers does the steam pass from the boiler until it is in the form of water in the hot well?

124.

Name the pieces of the engine through which the pressure of the steam is transmitted from the piston to the screw propeller. Name them in the order in which they act.

125.

What is an air vessel? How does it act? At what parts of an engine or of its fittings are air vessels generally applied?

126.

What is the construction of a mud box? Where should mud boxes be placed? Why are they necessary? How should the space be divided by the rose plate, and why?

127.

What is a trunk engine? When used in a horizontal engine for a right-hand screw propeller, at which side of the vessel should the cylinders be placed? Why so?

128.

What is an oscillating engine? For what steamers are oscillating engines generally adopted? Why? How is the steam conveyed to and from the slide valve casing?

129.

Of what parts does the valve motion gear of an oscillating engine consist?

130.

For what have geared engines sometimes been used? Of what were the cogs of the large wheel made?

131.

At what part of a screw steamer is the pressure that propels it applied to the hull?

132.

At what part of a paddle steamer is the pressure that propels it applied to the hull?

133.

About how much fuel per indicated horse power per hour is required by modern steam engines, common, compound and triple expansion ?

134.

What is the explanation of the economy of the surface condenser ?

135.

What is the construction of a surface condenser ? Of what are its tubes made ? How are they fixed ? How are they kept tight ? What is done with a split tube ?

136.

Where do surface condensers foul ? How are they cleaned ?

137.

What non-conducting substances are employed to prevent radiation, and how are they applied ?

138.

In the construction of smoke-box doors and of dry uptakes, what provision is made to lessen the amount of radiation ?

139.

How can the formation of black smoke be prevented ? Describe smoke preventing apparatus ?

140.

What is meant by "circulation" in a boiler, and what are the results of defective circulation ?

141.

What means are sometimes adopted to improve the circulation in a boiler ?

142.

By what arrangement is the circulation promoted in a "hay-stack" boiler ?

143.

Describe a ship's side air-pump discharge valve ? In what respects does it sometimes differ from a common stop valve, and what attention does it require ?

144.

What is the construction of a feed escape valve, to what is its discharge connected, and how is its loading regulated ?

145.

When there is no feed escape valve, what is the arrangement of the feed valves or cocks ?

146.

What is the measure of a horse power ? How is indicated horse power ascertained ?

147.

Has "nominal horse power" a fixed meaning ? What is the use of this expression ? What is generally taken as the measure of one horse-power nominal ?

148.

What is "back pressure" in a cylinder ? About how much is it in each of the cylinders in your last steamer ? Is excessive cushioning ever a trouble under certain conditions in modern engines ? Say when and why and in which cylinder this occurs ?

149.

What is meant by "speed of piston" ? About how much is the speed of piston in modern marine engines ?

150.

What is "atmospheric pressure" ? What is its average amount ? What instrument tells this amount ?

151.

What is "gross pressure" or "absolute pressure"? What pressure is it that is shown by the steam gauge?

152.

What is meant by "cutting off" steam? How is it done? What part of the valve regulates the cut off?

153.

What is a piston slide valve? Describe its construction? Why are such frequently employed in place of the common slide valve? What is a great drawback to the use of these valves?

154.

What fixes the time of closing the exhaust? After the exhaust is closed and before the port opens for steam, what becomes of the steam that is in the cylinder?

155.

What is the "lead" of the valve? What is its object? About what amount is it?

156.

What is the "cover" or "lap" of the valve? What is its object? About what proportion of the stroke of the valve is it made?

157.

What is the "exhaust cover" of a slide valve? What is its effect upon cushioning and upon exhaust?

158.

What is "minus cover" or "minus lap" on the exhaust? What is its effect upon the exhaust and upon cushioning?

159.

What is "cushioning" or "compression" in a steam cylinder? How is it affected by the amount of cover or of minus cover there may be upon the exhaust? How is it affected by the exhaust pressure?

160.

What is "mean effective pressure"? How is its amount ascertained?

161.

What is a dial vacuum gauge? What is its construction? For what is it used? About what amount should it show when the engine is working all right? What effect has the variations it indicates on the performance of the engine?

162.

Does the vacuum gauge enable you to tell what pressure there is in the condenser, or must you have recourse also to the barometer to arrive at that? How would you ascertain the actual amount of back pressure there is in the condenser?

163.

What is a barometer? What is its construction? Is a barometer sometimes used instead of a vacuum gauge? In what respect does the weather barometer differ from the vacuum gauge barometer?

164.

The common vacuum gauge and the common steam gauge: in which of them are the graduations marked from atmospheric pressure? Does either of them tell what is the true actual pressure in the boiler or in the condenser?

165.

Do steam and vacuum gauges vary with the variations of the weather barometer? When the weather barometer varies from 29 to 31, how much will the vacuum gauge vary, and how will that affect the working of the engine? Why so?

Vacuum is generally stated in so many inches. What is meant by, say, 20 inches vacuum? What does that tell us about the absolute pressure of the vapour then in the condenser?

167.

From what depth will a pump draw water? Is there any limit? Why?

168.

What is vacuum? Can vacuum move a piston? When the temperature of the water in the condenser is 212°, what is the greatest degree of vacuum there can then be in the condenser?

169.

What is a thermometer; its construction? What is the property of matter that is the principle of its construction? What temperatures are regularly noted by careful engineers?

170.

What is the temperature of (1) melting ice, (2) of boiling water, (3) of steam about 60 lbs. pressure by the steam gauge, (4) of steam about 100 lbs., and (5) of strain about 150 lbs.; also (6) of smoke in the funnel, and (7) of water in the hot well?

171.

What is meant by the "conduction" of heat? Give examples of it in the boiler and in the engine.

172.

What is meant by the "convection" of heat? Give examples of it in the boiler and in the engine.

173.

What is meant by "radiation" of heat? Give examples of it in the boiler and in the engine.

174.

Which is convection, which is radiation, and which is conduction in the following cases: (1) Heat from the glowing fuel to the furnace crown. (2) Heat passing from one side of the furnace crown plate to the other. (3) Heat passing from the steam pipes in the engine-room. (4) The heat of evaporation?

175.

What are the effective heating surfaces of a marine boiler? What is an objection to vertical heating surfaces?

176.

What parts of a marine engine are exposed to danger when the temperature is below freezing point?

177.

What precautions are necessary in cold climates when the temperature is below freezing point?

178.

State as many ways as you can by which a boiler might not get its full feed; that is, a boiler, or one of a set of boilers, gets short of water although the feed valve is open its proper amount to what causes might this be due?

179.

Of what are furnace bars generally made? About what thickness are they at top? About what space is between them? Whether are the bars put farther apart for Newcastle coal or for Welsh coal?

180.

Which burns faster, Newcastle coal or Welsh coal? Which is the flaming coal? Which makes most smoke?

181.

About how many tons of steam coal will be burnt per day in four furnaces each 3′ 0″ wide, and of about the usual length? On what grounds do you say so?

182.

About how many tons of steam coal will be burnt per day with good compound engines to drive an ordinary steamer of 40 ft. beam 10 knots an hour by steam alone? On what grounds do you say so? What percentage more coal would be required to propel the same steamer one knot faster?

183.

About how many tons of steam coal will be burnt per day with a good compound engine, surface condensers, the low pressure cylinder 70 inches diameter, doing average work? On what grounds do you say so?

184.

A pair of inverted cylinder direct acting engines, there is a liner half an inch thick between the ahead eccentric rod and the eccentric strap, in overhauling the engine this piece is lost and forgotten; what difference will its omission make in the working of the engine, on the admission, on the cut off, and on the exhaust of the steam? Which will take place earlier, and which later distinguishing between the up stroke and the down stroke?

185.

A pair of inverted cylinder direct acting engines driving a right-hand screw; on which of the crosshead guide bars is the pressure greatest in the up stroke, and on which in the down stroke?

186.

A screw propeller is getting loose; it has a little play on the shaft, sideways on the key or feather; how will this show in the engine-room?

187.

How would you prove whether the centre line of the trunions of an oscillating cylinder be fair with the centre line of the main shaft?

188.

How can the fairness of a line of screw shafting be tested without lifting the shafts?

APPENDIX B.

Form Exn. 17.

Examination in Rough Working Drawing for a First-Class Engineer's Certificate of Competency.

1. The regulations in regard to the qualifications of a candidate for a first-class Engineer's Certificate of Competency specify that—

> "He must be able to make rough working drawings of the different parts of the engines and boilers."
>
> "He must be able to state the general proportions borne by the principal parts of the machinery to each other."

2. In accordance with these clauses, a candidate for a first-class certificate is required to make a rough working drawing of the parts specified on the other side of this leaf. A mechanic who has been some years in charge of marine engines and boilers ought by this time to have familiarly in his mind the general construction of at least one set of engines and boilers, say that set he was

last with. Fine drawing is not expected, and in the proportions of the parts a wide margin will be allowed ; absurd dimensions will be failure in practical knowledge.

3. The drawing must, however, be practically a working drawing, giving a sufficient number of views to show the parts fully—sections, plans, or elevations, just as the candidate would require to be supplied to him if he had to make the parts to the design of another person.

4. A clear hand sketch showing the construction, completely and fully dimensioned, will be accepted if the candidate prefers this alternative.

5. A portion only of the parts specified may be accepted in place of the whole, if that portion is sufficient to show that the candidate has a good practical idea of the construction of the parts, and a fair notion of their general proportions or dimensions.

6. Candidates are hereby cautioned not to put on paper what they have not fully considered, and deliberately intend to be understood, as their statement of what they know about the construction of any part required.

7. The statements given in by a candidate may be in themselves, apparently, of little importance, but as sample material from which the state of the candidate's knowledge of engines and boilers is to be inferred, every detail which is glaringly inconsistent with a sound knowledge of the use of the part, or in which an essential consideration has evidently been overlooked, is an important element in the description which the candidate is giving of his own qualifications.

8. The candidate is advised not to begin more than he can clearly finish in the time allowed. An important object in this part of the examination is to ascertain whether the candidate can be trusted to mark all necessary dimensions upon a sketch or a drawing. The test of this is, practically, the making of the part from the sketch without having to supply additional dimensions, and without measuring the drawing. To prove this ability the candidate must fully dimension the parts shown in his sketch or drawing, notwithstanding that the parts may be correctly drawn to scale. A drawing is fully dimensioned when no part of it is left to the option of the party who is to work to the drawing.

9. To prevent misunderstanding, however, when the candidate has been led into showing more of the details than he has time fully to finish, he should name, in the statement on the other side, the particular parts which he has fully dimensioned.

10. All dimensions should have lines and darts, to indicate distinctly the points between which the dimensions are given.

11. Beware of writing cross dimensions upon centre lines, or upon longitudinal dimension lines. This is not an order but a recommendation.

12. The candidate is not expected to design anything; he has merely to sketch or draw a something with which he is expected to be already familiar.

13. Pencil in nothing after half-past 3 ; all the dimensions, the figures, and the darts must be inked in; employ the remaining time in examining the drawing and in inking in any figures which may have been before overlooked, and in checking the dimensions.

14. Make sure that you will have sufficient room on the drawing sheet to show all the necessary views. You can have another sheet or drawing paper if necessary. All the paper used must be forwarded with the drawing.

15. Fill in and sign the following statement.

(Specimen.)

Form **Exn. 17a.**

SUBJECT FOR EXAMINATION IN ROUGH WORKING DRAWING.

(Read the foregoing general instructions.)

A common slide valve with its spindle. Show also an outline section of the ports at the cylinder face. Show the provision for connecting the slide valve to the spindle.

The candidate is requested to fill up the following, and to attach this paper to his drawing.

STATEMENT BY THE CANDIDATE.

The accompanying drawing, made by me this day, without referring to any document, and without the assistance of any person, is intended by me to be sufficient for the new construction of the parts above described to fit the places of similar parts which are to be removed. The construction is similar to what I have been with in the_____steamer_____, but the dimensions may be different.

The diameter of the cylinder is_____

The stroke of the piston is_____

The stroke of the valve is_____

The cover at top end on steam side is_____

The cover at bottom end on steam side is_____

The lead at top is intended to be_____

The lead at bottom is intended to be_____

The inside cover is +_____or-

The thickness of the face of valve is_____

The thickness of the body of valve is_____

The greatest opening for steam will be_____

That gives an area equal to one_____

The opening for exhaust when the crank is on the top centre is_____

That gives an area equal to_____th of piston.

The length of the connecting rod is_____

The valve will cut off steam on the down stroke at_____

The valve will cut off steam on the up stroke at_____

The Candidate may omit this part if he chooses.

The parts fully dimensioned, in ink, are_____

Dated at _____.

this_____ day of_____18

_____ Applicant.

BENGAL.



Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act,* 1869.

Colonial Certificate of Competency

AS

FIRST CLASS ENGINEER.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of FIRST CLASS ENGINEER in the Merchant Service, I do hereby, in pursuance of Act VII of* 1884, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

this _____ *day of* _____ 18——.

Under-Secy. to the Govt. of Bengal.

BENGAL.

No. of Certificate [redacted]

*Address of Owner*_____

*Date and Place of Birth*_____

*Signature*_____

*This Certificate is given upon an ORDINARY EXAMINATION passed at*_____ *on the*_____ *day of*_____ 18 .

Any ENGINEER who fails to deliver up a Certificate which has been cancelled or suspended, is liable to a penalty not exceeding Rs. 500. *This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act* 25 *and* 26 *Vic., cap.* 63, *sec.* 23, *to cancel or suspend Certificates.*

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

*Issued at the Port of Calcutta on the*_____ *day of*_____ 18 .

Registered,
Port Officer of Calcutta.

Government of Bengal.

BENGAL.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act*, 1869.

Colonial Certificate of Competency

AS

SECOND CLASS ENGINEER.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of SECOND CLASS ENGINEER in the Merchant Service, I do hereby, in pursuance of Act VII of* 1884, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

*this*_____*day of*_____18___.

[redacted]

Under-Secy. to the Govt. of Bengal.

BENGAL.

No. of Certificate [redacted]

Address of Owner——————————————————

Date and Place of Birth——————————————————

Signature——————————————

This Certificate is given upon an ORDINARY EXAMINATION passed at——————*on the*——————

day of——————18——.

Any ENGINEER who fails to deliver up a Certificate which has been cancelled or suspended, is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the——————*day of*——————18——.

Registered,
Port Officer of Calcutta.

No. 24 Marine, dated Calcutta, the 30th January 1890.

NOTIFICATION—By the Govt. of Bengal, P. W. Dept

UNDER the powers conferred upon him by section 36 of Act VII of 1884 (the Indian Steam-ships Act), and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to engine-drivers of sea-going steam-ships having engines of under 50 nominal horse-power :—

1. Certificates of competency will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed and arrangements have been made for holding the examinations periodically at the port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint.

2. The application for examination is to be made in Form Exn. 3*a*, which must be filled up at the Port Office. The Exn. 3*a* properly filled in, together with the candidate's testimonials, must be lodged with the Port Officer not later than the day before the day of examination.

3. A candidate for a certificate of competency under these rules must be not less than 22 years of age.

4. He must have served three years as principal serang or tindal in the engine-room of a sea-going steamer under a certificated Engineer.

5. He must have the testimonial shown in Appendix A filled up by the Engineer with whom he has last served, or his other testimonials must contain all the particulars therein required.

6. He must pass a *vivâ voce* examination before the Board of Examiners as to the working of an engine and the use of its different parts.

7. He must, if required, be able to show his practical qualifications by one week's trial in a steamer, after fulfilling the other tests to which he will be subjected.

8. He must show a knowledge of the use of brine cocks and blowing off, of the salinometer, and of the care of the boiler in salt-water.

9. Candidates for examination, in making the application on Form Exn. 3*a*, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them; but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service or are able to produce satisfactory testimonials, as the case may be.

10. The fee for examination under these rules is ten rupees, and the amount must be remitted with the application to the Port Officer. In any case in which a candidate offers money to any other officer than the Port Officer, and in any place but the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

11. If a candidate fails in his examination, *no part of the fee he has paid will be returned to him.*

12. In case of failure, candidates may be re-examined *de novo* after a lapse of six months, if the past examination showed that they might reasonably be expected to qualify.

13. Certificates of competency shall be made and issued by the Government in the form hereunto annexed.

14. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

TESTIMONIAL.

hereby certify that *has*

served with me in the engine-room of *as principal serang*

or tindal for a period of , *during which time he*

has discharged his duties to my entire satisfaction.

I consider that he fully understands the working of an

engine, and has sufficient tact, presence of mind, and energy to

look after and manage the working of the engines of a sea-going

steamer having engines of under 50 *nominal horse-power.*

Signed

No. and description of Certificate.

Note.—Any Engineer giving a testimonial in this form should be very careful in doing so, as the document may materially influence the applicant's eligibility as a candidate.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

ENGINE-DRIVER OF A SEA-GOING STEAM VESSEL UNDER ACT VII OF 1884.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of Engine-driver on a sea-going Steam-ship having engines of under 50 nominal horse-power, I do hereby, in pursuance of Act VII of* 1884, *grant you this CERTIFICATE OF COMPETENCY as Engine-driver.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

*The*_____*day of*_____18____. *Under-Secretary to the Govt. of Bengal.*

No. of Certificate

*Bearer*_____ *son of*_____ *by caste*_____

Date and Place of Birth, showing Village, Thana and District*_____

*Residence, showing Village, Thana and District*_____

*Height*_____

*Personal description, stating particularly any permanent marks or scars*_____

*No. of Register Ticket*_____

*Signature*_____

Any Engine-driver who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer of Calcutta.

*Issued at Calcutta on the*_____ *day of*_____ 18____.

Registered.

Port Officer of Calcutta.

* If not known exactly, must be stated on the best information or evidence.

No. 25 Marine, dated Calcutta, the 30th January 1890.

NOTIFICATION—By the Govt of Bengal, P. W. Dept.

UNDER section 10 of the Indian Merchant Shipping Act, 1859, the Lieutenant-Governor is pleased, with the sanction of the Governor-General in Council, to make the following rules for the conduct of examinations for Masters and Mates of foreign-going ships and as to the qualifications to be required. These rules are in supersession of the rules issued under the notification dated the 28th of August 1877.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose examiners have been appointed, and arrangements have been made for holding the examinations periodically at the port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint.

Examinations continued till all the Candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the Candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Notice of application for examination to be given to the Port Officer.

3. Candidates for examination must make their application upon the appropriate Form (Exn. 2), which must be filled up at the Port Office. The Exn. 2, properly filled in, together with the Candidate's testimonials and discharges, must be lodged with the Port Officer of Calcutta not later than the day before the day of examination, and the Candidate must conform to any regulations in this respect which may be laid down by the Government, as, if this be not done, delay may be occasioned.

Testimonials of character, conduct, and ability required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges may have to be verified before the Candidate can be examined, it is desirable that they should be handed in together with the Form, Exn. 2, as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners, and of British Seamen serving in foreign vessels, which cannot be verified by the Port Officer, must be confirmed either by the Consul of the country to which the ship in which the Candidate served belonged, or by some other recognized official authority of that country, or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case will be decided on its own merits, and if the sufficiency of the proofs given appears to be at all doubtful, it must be referred to the Government.

Certificates as to age.

6. Should any doubt exist as to the age of a Candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British Vessel. In the case of natives of India, who may not be able to speak English, their Certificates will be endorsed to the effect that they are only valid for vessels manned and officered entirely by Asiatics.

8. The time for which length of service as Seaman or Officer in the Mercantile Marine is to be reckoned in all cases referred to in the following paragraphs is to commence at the date when the Articles of Agreement were signed by the Applicant, and to end at the date when he was discharged as shown on the Articles of Agreement. The Certificates of Discharge will generally be sufficient evidence of this, but great care must be exercised by the Port Officer and Examiners to detect any tampering in any way with the information contained in them, and to report to the Government at once any suspicious cases.

Verification of services, &c., by Articles

9. Services, which cannot be verified by proper Entries in the Articles of the Ships in which the Candidates have served, cannot be counted. For instance, a man will state his

service to have been as Second or Only Mate, and to support his assertion will produce a Certificate of Discharge or of employment by the Master, to the effect that he served as Mate, when, on reference to the Articles, it appears that he has actually been rated as Boatswain; the service in such a case will not be regarded as having been in the capacity of Mate.

Promotion during Voyage

10. Whenever a man has, from any cause, been regularly promoted on a vacancy in the course of the Voyage from the rank in which he first shipped, and such promotion, with the ground on which it has been made, is properly entered in the Articles and in the Official Log Book, he will of course receive credit for his service in the higher grade for the period subsequent to his promotion.

Service in the coasting trade

11. Service in the coasting trade may be allowed to count as service, in order to qualify a Candidate for examination for a Certificate of Competency for Foreign-going Ships, it being understood, however, that service in the coasting trade must amount to half as much again as service in the foreign trade, and that service in a lower grade than that of First or Only Mate in the coasting trade will not be recognised as officer's service.

12. Three years' service as Mate in the coasting trade, together with at least nine months' service as Master, may be allowed to count as service for a Master's Certificate, provided the Candidates' entire service at sea calculated as above is sufficient, and that his services as Mate and Master in the coasting trade can be proved by the Articles, and provided he has already passed an examination *for the Foreign Trade*, unless, *under special circumstances*, the Government see fit to dispense with this latter provision.

13. Service in Pleasure Yachts under 80 tons, if performed within Home Trade limits, will not be accepted towards qualifying a Candidate for examination.

14. Service in Pleasure Yachts will not be accepted at all unless verified by satisfactory proofs, and it must be distinctly understood that accepted service is confined to *actual sea service*, service in harbour or port being inadmissible. *See also para.* 21.

Service as an Apprentice.

15. Time for which Indentures of Apprenticeship are in force will be accepted as sea service, provided that the Apprentice has remained by the ship for at least four-fifths of the time covered by the Indentures, and the Indentures of the applicant are endorsed by the Owner or Master to whom he has been bound, to the effect that he has performed his service faithfully for the whole time agreed upon.

Service as 3rd or 4th Mate to qualify for 1st Mate.

16. Service as Third or Fourth Mate may be accepted as equivalent to service as Second Mate to qualify a Candidate for examination for a Certificate of Competency as First Mate, provided he is able to produce a satisfactory testimonial from the Master or owner of the vessel in which the service was performed, showing that he has had charge of a watch while serving as such Third or Fourth Mate, and that during the whole of the time claimed he was in possession of a Second Mate's Certificate of Competency, valid in the United Kingdom.

Service as 3rd or 4th Mate to qualify for Master.

17. Service as Third or Fourth Mate may also be accepted on the same conditions to qualify a Candidate for examination for a Master's Certificate of Competency, provided he can produce satisfactory evidence of his having served at sea 12 months as Second Mate of a Foreign-going Ship while in possession of a First Mate's Certificate of Competency, valid in the United Kingdom. If a Candidate has had no service as First Mate he must have been six and-a-half years at sea, of which two and-a-half years must have been as Mate of a lower grade under the above-named conditions. It will also be noted that occasional service in charge of a watch in the daytime will not be accepted as Mate's service under the Regulations.

Service on board a Training Ship.

18. Part of the time served on board a training ship will be allowed to count as service at sea, provided that the Candidate can produce amongst his testimonials a Certificate from the Committee that he has conducted himself creditably, and passed a good examination in seamanship so

far as practised in the training ship as well as in other matters down to the time of his leaving the ship.

19. No period of service on board a training ship will be allowed to count for more than one year's sea service, nor can it be accepted as equivalent to service in square-rigged vessels.

Service in Auxiliary Screw Whaling ships.

20. Service in Auxiliary Screw Whaling Ships and other Vessels with auxiliary steam power, which use their screws only in calms or during light winds, is considered as service performed in Sailing Vessels. Such service is not to be accepted in cases where service on board Foreign-going Steam-ships is required.

Service in Trawlers, Yachts, &c.

21. Service performed in Trawlers, Yachts, &c., *alone* will not qualify a Candidate for examination for a Foreign-going Certificate. He must show that he has served, in addition thereto, 18 months in an ordinary trading vessel.

Service in capacities other than as Apprentice or Seaman.

22. Candidates whose services have been in capacities other than Apprentice, Ordinary Seaman, or Able Seaman, *e.g.*, Cook, Steward, Carpenter, &c., will be required to satisfy the Port Officer that they have a good knowledge of Seamanship. This may possibly be proved by the production of satisfactory Certificates from Masters with whom the Applicants have served. Failing satisfactory evidence, the Applicant may be required to perform additional service, which must be in the capacity of Ordinary Seaman or Able Seaman.

Service on rivers and in smooth-waters.

23. Service performed on rivers, no matter of what size, or in smooth-water or partially smooth-water cannot be accepted.

Loss of sight.

24. A person who has lost the sight of one eye cannot be allowed to be examined for a Certificate of Competency. If he already holds a Certificate, he will not be allowed to be examined for a Certificate of a higher grade.

Service in Light Ships and Engine-room.

25. Service in Light Ships or in an Engine-room will not be accepted as sea service for a Master's or Mate's Certificate of Competency.

26. In the case of service on board Excursion Steamers only such service as has been performed actually at sea can be accepted.

27. A First Class Pilot, with one year's Sea Service since he obtained his Pilot's Certificate, may be examined for a First Mate's Certificate for Foreign-going Ships. A Hooghly Master Pilot is for the purpose of this rule to be considerd a First Class Pilot.

Services as Pilot's Apprentice.

28. Half the amount of service performed as an Apprentice in a Pilot Vessel propelled by sails may count as actual Sea Service to qualify for examination for a Certificate of Competency.

Desertion and gross misconduct.

29. Candidates who have neglected to join their vessels after having signed Articles, or who have deserted their vessels after having joined, or who have been found guilty of gross misconduct on board, will be required to produce satisfactory proofs of two years' subsequent service and good conduct at sea, unless the Local Government after having investigated the matter should see fit to reduce the time.

If after passing examination services are found to have been insufficient.

30. If after a Candidate has passed his Examination it is discovered on further investigation, *e.g.*, by verification on the part of the Port Officer, that his services are insufficient to entitle him to receive a Certificate of the grade for which he has passed, it will not be granted to him; but if the Government is satisfied that the error in the calculation of his services did not occur through any fault or wilful misrepresentation on his part, he will be allowed to go up for re-examination without payment of further fee when he has performed the amount of service in which he was deficient.

Certificate of a lower grade may be granted in certain conditions.

31. If, in such a case, the applicant's services are sufficient to entitle him to receive a Certificate of a lower grade, provided as aforesaid he has not wilfully misrepresented the amount of his services, an Inferior Certificate may be granted to him, and the difference, if any, between the fee paid by him for the Superior Certificate and the fee payable for the Inferior Certificate, may be placed to his credit.

Must be re-examined for certificate of higher grade.

32. In such a case when the applicant has by further service made up the amount in which he was found to be short, he must, before he can receive the higher Certificate, be re-examined in all the subjects.

Colour Tests.

33. The Government have made the following arrangements for the Examination of persons as to their ability to distinguish Colours:—*

34. Examinations in Colour are open to any person serving or about to serve in the Mercantile Marine.

35. Any person, including the holders of Certificate of Competency, or persons about to apply for Certificates of Competency, if desirous of being examined *in colours only*, must make application to the Port Officer on Form Exn. 2ª, and pay a fee of one rupee.

36. He must on the appointed day attend for examination at the Examiner's Office; and if he passes he will receive a Certificate to that effect.

37. If he fails it will be open to him to be examined again in Colours as often as he pleases on payment of the fee of one rupee at each fresh attempt.

38. The application of a *Candidate who is presenting himself for Examination for a Master's or Mate's Certificate* must be made on Form Exn. 2.—Such examination will commence with the Colour test; and if the Candidate does not, at the time of making application, hold a Certificate of Competency of any grade, and should fail to distinguish correctly any one of the colours used in the test, he will not be allowed to proceed with the examination in Navigation and Seamanship.

39. The fee he has paid for Examination for a Certificate of Competency will include the fee for the Colour test, and, with the exception of one rupee, will, in such event, be returned to him.

40. A Candidate for Examination for a Certificate of Competency who, at the time of making application, does not possess a Certificate, and who fails to pass the colour test, may not be re-examined until after the lapse of three months from the date of his first failure. If he fails a second time, he will be allowed a third trial at the expiration of another three months from the date of his second failure. A fresh fee must be paid at each succeeding examination.

41. It is therefore obviously to the advantage of Candidates for Certificates of Competency to apply in the first instance to be examined in *Colours only* on Form 2ª.

42. A Candidate who holds a Certificate of Competency, and who, on presenting himself for Examination for a Certificate of a higher grade, is unable to pass the Colour test, will notwithstanding be permitted to proceed with the Examination in Navigation and Seamanship for the Certificate of the higher grade.

43. Should he pass this Examination the following statement will be written on the face of the higher Certificate which may be granted to him, viz.: "This officer has failed to pass the 'Examination in Colours.'"

44. Should he ultimately fail to pass the Examination in Navigation and Seamanship a like statement, relating to his being Colour blind, will be made by the Port Officer on his existing Certificate before it is returned to him.

45. Holders of Certificates which bear the statement of their having failed to pass in Colours, and who may desire to have the statement removed from their Certificates, must obtain the special permission of the Government.

Qualifications for Certificates of Competency for a "Foreign-going Ship."

Foreign-going Sailing Ships.

46. EXAMINATION IN COLOURS.—All Candidates for Certificates of Competency must first be examined in colours.*

47. A SECOND MATE must be not less than seventeen years of age, and must have been four years at sea. He must also prove that he has served at least one year in a square-rigged sailing vessel within the last five years. *See also para.* 11. Second Mate.

On and after the 1st April 1890, no Candidate will be allowed to be examined unless he has served at sea two years

* *See* Appendix L.

within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined.

48. IN NAVIGATION, &c.—He must write a legible hand, and will be required to give in writing, *vide supplementary vivâ voce* test, page 37, definitions of various astronomical and other terms used in navigation.* He must have a competent knowledge of the first five rules of arithmetic, and the use of logarithms. He must be able to work a day's work complete, correcting the courses for deviation, lee-way, and variation. He will be required to find the latitude by meridian altitude of the sun, and the difference of longitude from a given departure by parallel sailing; also to find the course and distance from one position to another by Mercator's method. He will be required to find the time of high water at a given port, to observe and calculate the amplitude of the sun, and to find the error of the ship's compass therefrom, and also the deviation, the variation being given. He must be able to find the daily rate of the chronometer from error observed, and to find the longitude from altitude of the sun by the usual methods. He must understand the use of the sextant, with its adjustments, and be able to observe with it, find the index error by the horizon, and *read off* and *on the arc*.† He must also pass a satisfactory examination in the International Code of Signals.‡

49. IN SEAMANSHIP, &c.—He must give satisfactory answers as to the standing and running rigging of ships; as to bending, unbending, setting, reefing, taking in and furling sail; as to sending masts and yards up and down, &c., &c.; as to the management of a ship when under canvas; of a ship's boat in heavy weather, and as to dunnaging and stowing cargo, &c. He must have a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog, and sound signals,§ and be able to describe the signals of distress, and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals ‖ He must be able to mark and use the lead and log lines. He must also understand the use and management of the rocket apparatus in the event of his vessel being stranded, and other questions of a like nature appertaining to the duties of the Second Mate of a ship, which the Examiners may think necessary to put to him. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Second Mates' Certificates of Competency for Foreign-going Steam-ships.

50. AN ONLY AND FIRST MATE.—An Only Mate and a First Mate must be not less than nineteen years of age, and must have served five years at sea, of which in the case of a First Mate, one year must have been as Second or Only Mate. *See* also paras. 11, 16 and 27.

On and after the 1st April 1890, no Candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediataly preceding the date of his application to be examined.

Only and First Mate.

A Candidate for an Ordinary Certificate of *any* grade, who does not already hold an Ordinary Certificate of a lower grade, must prove that he has served 12 months in a square-rigged sailing vessel within the last five years.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined.

51. IN NAVIGATION.—In addition to the qualifications required for a Second Mate, an Only and First Mate must be

* *See* Appendix A.

† *See* Appendix B. | § *See* Appendix D.
‡ *See* Appendix C. | ‖ *See* Appendix E.

able to find the true bearing of the sun and the error of the ship's compass from an observed azimuth of the sun, both from an altitude and also from the "Time Azimuth Tables," and with the variation given compute the deviation; to find the latitude from a single altitude of the sun off the meridian, and be able to use and adjust the sextant,* and to find the index error by the sun; also to ascertain the true bearing of the sun, &c., and the ship's position by Sumner's Method by Projection.† He must also be conversant with the use of Mercator's Chart, and be able to find, on either a "true" or "magnetic" chart,‡ the course to steer and the distance from one given position to another; and find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of ship from the object at the time of taking the second bearing. He must also understand how to keep a ship's Log Book. He will also be required to answer certain questions in writing (*and orally*) relative to cyclones or revolving storms.§

52. In Seamanship, &c.—In addition to the qualifications required for a Second Mate, a more extensive knowledge of seamanship will be required, as to shifting large spars, rigging sheers, taking lower masts in and out, how to moor and unmoor ship, and to keep a clear anchor; to carry out an anchor; how to manage a ship in stormy weather; how to cast a ship on a lee shore; how to secure the masts in the event of accident to the bowsprit; and how to rig purchases for getting heavy weights, anchors, machinery, &c., in and out. He must give satisfactory answers as to the ventilation of holds and the stowage of explosives. He must also know how to rig a sea anchor, and what means to apply to keep a vessel disabled or unmanageable out of the trough of the sea, and lessen her lee drift; how to get a cast of deep sea lead in heavy weather; and answer any other questions appertaining to the duties of an Only and First Mate of a ship which the Examiners may think necessary to put to him. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Only and First Mate's Certificates of Competency for Foreign-going Steam-ships.

53. A MASTER must be twenty-one years of age, and have been six years at sea, of which one year must have been as First or Only Mate in a Foreign-going Ship, and one year as Second or Only Mate; or he must have been six and-a-half years at sea, of which two and-a-half years must have been as Second Mate of a Foreign-going Ship, during the last twelve months of which service as Second Mate he must have been in possession of a First Mate's Certificate. *Vide also paras.* 11, 12 and 17. Master

On and after the 1st June 1889, no Candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

A Candidate for an Ordinary Certificate of any grade, who does not already hold an Ordinary Certificate of a lower grade, must prove that he has served 12 months in a square-rigged sailing vessel within the last five years.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined.

54. In Navigation.—In addition to the qualifications required for a Second, Only, and First Mate, a Master must be able to compute the latitude from the meridian altitude of a star, &c. He must be able to find the magnetic bearing from

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* *See* Appendix B.

† *See* Appendix I.

‡ *See* Appendix F. The terms "true" and "magnetic" are used throughout the Regulations for the sake of brevity and convenience for indicating charts that have compasses engraved upon them showing the "true" or "magnetic" points of the compass respectively.

§ *See* Appendix K.

equidistant compass bearings of any fixed object when at sea, and compute the deviation therefrom. He must construct a deviation curve upon a "Napier's" diagram, which will be furnished by the Examiner, and understand the practical application of the same, and give satisfactory written (*and oral*) answers to certain practical questions on the effect of the ship's iron upon the compasses, the method of determining the deviation, and compensating same by magnets and soft iron.* He will be required to find the course to steer by compass in order to counteract the effect of a given current, and find the distance the ship will make good towards a given point in a certain time and to work out practically the correction to apply to soundings taken at a given time and place to compare with the depth marked on the chart.†

55. In Seamanship, &c.—In addition to the qualifications required of a Second, Only, and First Mate, he must be able to construct jury rudders for both wooden and iron vessels, and also rafts. He will be examined as to his resources for the preservation of the ship's crew in the event of wreck; as to the management of ships in heavy weather; as to rescuing the crew of a disabled ship; as to steps to be taken when a ship is on her beam ends, or in any danger or difficulty; or if disabled or unmanageable and on a lee shore; heaving a keel out, &c. He must explain the mode of procedure when placing ship in dry dock, directing repairs, and if putting in to port in distress with damage to cargo and ship. He must possess a sufficient knowledge of what he is required to do by law, as to entry and discharge, and the management of his crew, and as to penalties, and entries to be made in the official log, and a knowledge of the measures for preventing and checking the outbreak of scurvy on board ship, and the law as to load line marks, and the entries and reports to be made respecting them. He will be questioned as to his knowledge of invoices, charter party, bills-of-lading, Lloyd's agent, and as to the nature of bottomry, also bills-of-exchange, surveys, averages, &c., and must answer any other questions of a like nature appertaining to the management of a ship which the Examiners may consider it necessary to touch upon. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Masters' Certificates of Competency for Foreign-going Steam-ships.

Fore and Aft rigged ships.

Certificates for Fore and Aft rigged Vessels.

56. Certificates for the grades of Master, First Mate, Only Mate, and Second Mate, on which the words "for Fore and Aft rigged vessels only" will be written, will be issued to Candidates who have not complied with the regulation which requires them to have served at least one year in square-rigged *sailing* vessels, or who prove in course of examination that they are ignorant of the management of square-rigged ships.

57. A certificate "for Fore and Aft rigged vessels only" will not entitle the possessor to act in a capacity for which a certificate is required in square-rigged vessels, amongst which are classed full-rigged ships, barques, brig, barquentines, brigantines, and steam-ships carrying square sails.

58. A Candidate possessing a certificate "for Fore and Aft rigged vessels only," and desiring to obtain an ordinary certificate of the same grade, must prove that he has served at sea at least one year in a square-rigged *sailing* vessel, and will be re-examined both in navigation and seamanship.

Foreign-going Steam-Ships.

Qualifications for Certificates of Competency for Foreign-going Steam-ships only.

59. Certificates of Competency will be issued, subject to the examinations hereinafter described, for officers who have served in steam-ships, and who, owing to absence of service in square-rigged sailing ships, cannot under the

* *See* Appendices G and M.
† *See* Appendix F.

existing regulations obtain Certificates of Competency to act in the capacity of Masters or Mates of square-rigged ships.

60. These certificates will entitle the holders to go to sea as Masters and Mates of foreign-going steam-ships, but will not entitle the holders to go to sea as Masters or Mates of foreign-going sailing ships.

61. There will be no distinction in respect of "Fore and Aft" and "Square-rigged" steam-ships.

62. EXAMINATION IN COLOURS.—All Candidates for Certificates of Competency must pass the examination in Colours.

63. A SECOND MATE must be not less than seventeen years of age, and must have been four years at sea. *See* also para. 11. Second Mate.

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

64. IN NAVIGATION, &c.—He must write a legible hand, and will be required to give in writing (*vide supplementary vivâ voce test, page* 39) definitions of various astronomical and other terms used in navigation.* He must have a competent knowledge of the first five rules of arithmetic, and the use of logarithms. He must be able to work a day's work complete, correcting the courses for deviation, leeway, and variation. He will be required to find the latitude by meridian altitude of the sun, and the difference of longitude from a given departure by a parallel sailing; also to find the course and distance from one position to another by Mercator's method. He will be required to find the time of high water at a given port, to observe and calculate the amplitude of the sun, and to find the error of the ship's compass therefrom, and also the deviation, the variation being given. He must be able to find the daily rate of the chronometer from error observed, and to find the longitude from altitude of the sun by the usual methods. He must understand the use of the sextant with its adjustments, and be able to observe with it, find the index error by the horizon, and read *off* and *on* the arc.† He must also pass a satisfactory examination in the International Code of Signals.‡

65. IN SEAMANSHIP, &c.—He must give satisfactory answers as to the standing and running rigging of steam-ships; as to bending, unbending, setting, reefing, taking in and furling sail; as to sending masts and yards up and down, &c., &c., as to seeing everything in readiness and clear for getting under way, and as to the precautions to be then observed with regard to engines, propellers, &c.; as to the management of a steam-ship when under canvas; and of a ship's boat in heavy weather, and as to dunnaging and stowing cargo, &c. He must have a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog, and sound signals,§ and be able to describe the signals of distress and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals.‖ He must be able to mark and use the lead and log lines. He must also understand the construction, use, and action of the sluices, and of the water-ballast tanks, engine-room, telegraph, &c.; the use and management of the rocket apparatus in the event of his vessel being stranded, and other questions of a like nature, appertaining to the duties of the Second Mate of a steam-ship, which the Examiners may think necessary to put to him.

66. AN ONLY AND FIRST MATE.—An Only Mate must be not less than nineteen years of age, and must have served five years at sea. A First Mate must be nineteen years of age, and must have served five years at sea, of which Only and First Mate.

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* *See* Appendix A. † *See* Appendix B. ‡ *See* Appendix C.
§ *See* Appendix D. ‖ *See* Appendix E.

one year must have been as Second or Only Mate of a Foreign-going Steam-ship. *See also paras.* 11, 16 *and* 27.

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last three years immediately preceding the date of his application to be examined

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

67. IN NAVIGATION.—In addition to the qualifications required for a Second Mate, an Only or First Mate must be able to find the true bearing of the sun and the error of the ship's compass from an observed azimuth of the sun both from an altitude and also from the "Time Azimuth Tables," and with the variation given compute the deviation; to find the latitude from a single altitude of the sun off the meridian, and to be able to use and adjust the sextant,* and to find the index error by the sun; and also to ascertain the true bearing of the sun, &c., and the ship's position by Sumner's Method by Projection.† He must also be conversant with the use of Mercator's Chart, and be able to find on either a "true" or "magnetic" chart,‡ the course to steer and the distance from one given position to another; and find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of ship from the object at the time of taking the second bearing. He must also understand how to keep a ship's Log Book. He will also be required to answer certain questions in writing (*and orally*) relating to cyclones or revolving storms.

68. IN SEAMANSHIP.—In addition to the qualifications required for a Second Mate, a more extensive knowledge of seamanship will be required, as to shifting large spars, rigging sheers, taking lower masts in and out, how to moor and unmoor ship and to keep a clear anchor, to carry out an anchor; how to manage a steam-ship in stormy weather, and how to rig purchases for getting heavy weights, anchors, machinery, &c., in and out. He must give satisfactory answers as to the ventilation of holds, and the stowage of explosives. He must be able to describe the effects of the screw race upon the rudder; and the effect produced on the direction of the head of the ship by going [ahead] [astern] with a [right] [left] handed screw when the rudder is [ported] [starboarded]. He must also know how to rig a sea anchor, and what means to apply to keep a steamer with machinery disabled out of the trough of the sea, and lessen her lee drift. How to turn a steam-ship short round; how to get cast of deep sea lead in heavy weather, and other questions of a like nature appertaining to the duties of an Only and First Mate of a steam-ship, which the Examiners may think necessary to put to him.

Master.

69. A MASTER—Must be not less than twenty-one years of age, and have been six years at sea, of which one year must have been as First or Only Mate in a Foreign-going Steam-ship, and one year as Second or Only Mate; or he must have been six and-a-half years at sea, of which two and-a-half years must have been as Second or Only Mate in a Foreign-going Steam-ship, during the last twelve months of which he must have been in possession of a First Mate's Certificate. *See also paras.* 11, 12 *and* 17.

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

70. IN NAVIGATION.—In addition to the qualification required for a Second, Only, and First Mate, he must be able

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* *See* Appendix B. † *See* Appendix I. ‡ *See* Appendix F.
Also page 24 foot-note ‡.

to compute the latitude from the meridian altitude of a star, he must be able to find the magnetic bearing from equidistant compass bearings of any fixed object when at sea, and compute the deviation therefrom. He must construct a deviation curve upon a "Napier's" diagram which will be furnished by the Examiner, and understand the practical application of the same, and give satisfactory written *(and oral)* answers to certain practical questions on the effect of the ship's iron upon the compasses, the method of determining the deviation, and compensating same by magnets and soft iron * He will be required to find the course to steer by compass in order to counteract the effect of a given current, and find the distance the ship will make good towards a given point in a certain time, and to work out practically the correction to apply to soundings taken at a given time and place, to compare with the depth marked on the chart.†

71. In Seamanship, &c.—In addition to the qualifications required of a Second, Only, and First Mate, he must be able to construct rafts and jury rudders suitable for a screw steam-ship. He will be examined as to his resources for the preservation of the ship's crew in the event of wreck; as to the management of steam-ships in heavy weather; as to rescuing the crew of a disabled ship; as to steps to be taken when a ship is on her beam ends; or if disabled and on a lee shore. How to use steam appliances in the event of fire, and the best arrangement for towing vessels under different circumstances, placing ship in dry dock, directing repairs, and the mode of procedure if putting into port in distress with damage to cargo and ship. He must possess a sufficient knowledge of what he is required to do by law, as to entry and discharge, and the management of his crew, and as to penalties and entries to be made in the official log, and a knowledge of the measures for preventing and checking the outbreak of scurvy on board ship, and the law as to load line marks, and the entries and reports to be made respecting them. He will be questioned as to his knowledge of invoices, charter-party, bills-of-lading, Lloyd's agent, and as to the nature of bottomry; also bills-of-exchange, surveys, averages, &c., and answer any other questions of a like nature, appertaining to the management of a steam-ship, which the Examiners may consider it necessary to touch upon.

Service in Royal Navy.

Service in Royal Navy.

72. Officers of the Royal Navy are at liberty to apply for Certificates of service and to be examined for Certificates of Competency in the Mercantile Marine, but they must submit their applications in the manner directed by the Lords Commissioners of the Admiralty.

73 Officers of the Royal Navy desirous of being examined for Certificates of Competency in the Mercantile Marine will be required to prove the following service, of which twelve months must have been sea service under sail alone.

74. For Second Mate.—A Candidate must produce satisfactory evidence of four years' service at sea, or that he has attained the rank of acting Sub-Lieutenant.

75. For Only Mate.—A Candidate must prove five years' service at sea.

76. For First Mate or Masters.—A Candidate must show that he has attained the rank of Sub-Lieutenant, or Navigating Sub-Lieutenant.

Voluntary Examination in the Laws of the Deviation of the Compasses of Iron Ships.

Voluntary Examination of Masters and Mates in the Syllabus.

77. Any Master or Mate who wishes to pass a *voluntary* examination in the Syllabus* of examination on the Laws of the Deviation of the Compasses of an Iron Ship, &c., can at any time be examined upon filling up the form of application, and the payment to the Port Officer of the prescribed fee. If the candidate passes the examination successfully, an endorsement to that effect will be duly made upon the Master's or Mate's Certificate held by him.

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* *See* Appendices G and M. † *See* Appendix F. ‡ *See* Appendix A.

Failure.

Re-examination in case of failure

78. In all cases of failure the Candidate must be examined *de novo*. If a Candidate fails in *Seamanship* he will not be re-examined *until after a lapse* of SIX MONTHS. Whether the whole or part of this period must be served at sea must depend upon the subjects in Seamanship in which the Candidate failed, but what amount (if any) of sea service will be required will be left to the discretion of the Port Officer, subject, however, to revision by the Government, should they see fit.

79. The Examiners in making out their report on Form Exn. 14 should state what amount (if any) of further sea service the Candidate must perform, and they should also insert this information under Division H. in Form Exn. 2.*

80. If he fails three times in *Navigation* he will not be re-examined until after a lapse of THREE MONTHS from the date of the *last failure*.

Certificate of lower grade.

81. If a Candidate has failed in his Examination, but the subjects in which he has failed are not included in the subjects required for a Certificate of a lower grade, he may, if he desires it, receive a Certificate of such lower grade.

82. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled, for re-examination for the higher grade of Certificate he will be required to pay a further full fee.

83. If a Candidate fails for bad spelling or writing, he will not be re-examined until after a lapse of at least three months.

84. If a Candidate fails in his examination for an ordinary Certificate, he may, if qualified, and upon payment of another fee, &c., be examined for a Certificate of Competency for Foreign-going Steam-ships without waiting the usual time after failure.

Fees.

85. Candidates for examination, in making their application on Form Exn. 2, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause, except failure to pass the colour tests, not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be, they will be allowed to again present themselves for examination for a Certificate of the same grade without paying any further fee.

Fees to be paid by applicants for examination, s. 133.

86. The fee for examination must be paid to the Port Officer. In any case in which a Candidate offers money to any other officer, and in any place but in the Port office, the Candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be again examined for twelve months.

87. If a Candidate fail in his examination *no part of the fee will be returned to him.*

88. The fees are as follow:—

FOR "FOREIGN-GOING SAILING AND STEAM SHIPS."

	Rs.
Second Mate	12
First and Only Mate, if previously possessing an inferior certificate, either granted by the Board of Trade, or by the Government of a British Possession *under section* 8 *of the "Merchant Shipping (Colonial) Act*, 1869"	6
If not	12
Master	24
Where a Candidate is in possession of a Certificate for Fore and Aft rigged Vessels, for an Ordinary or Steam-ship Certificate of the same grade	12

* *See* Appendix H.

FOR "VOLUNTARY EXAMINATION IN STEAM."

	Rs.
Mate (Only or First)	12
Master	12

FOR "VOLUNTARY EXAMINATION IN DEVIATION OF THE COMPASS."

	Rs.
Mate (Second, Only or First)... ...	12
Master	12

GENERAL.

89. Certificates of Competency shall be made and issued by the Government in the forms hereunto annexed.

90. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate and the other shall be kept and recorded by the Port Officer of Calcutta.

90A. No application from the holder of a certificate granted by the Government of any other British Possession or by the Board of Trade to be examined for a certificate of the same legal value shall be entertained.

General Instructions to Examiners and Candidates.

Prohibited books and papers.

91. All instruments necessary for use in the examinations are supplied by the Government.

92. Before commencing the examination, the tables or desks must be cleared of all scraps of paper, or books that are not used in the examination, and care should be taken that the candidates do not bring into the examination room any book, paper, document, or memoranda of any description whatever. No person whatever should be allowed in the room during the time of examination, but those whose duties require them to be present.

93. No instructors will be allowed on the premises.

Candidates not to leave premises during examination.

94. Candidates will under no pretence whatever be allowed to leave the premises while the examination is proceeding. If a Candidate has occasion to visit the retiring room he will only be allowed to do so on the completion of the paper on which he may be engaged, when he will be required to enter in a book, kept for the purpose, the exact time of his leaving and returning to the examination room. When only a few Candidates are under examination, two persons will not be allowed to leave the room at the same time.

Position of Candidates at examination.

95. Candidates should be so placed as to prevent one copying from the other, and no communication whatever between the Candidates should be allowed.

Blotting paper.

96. If any blotting paper is allowed it should be black; and when the first examination paper is issued each Candidate should be furnished with a piece which should be returned to the Examiner upon the completion of the last paper.

How examination papers should be issued.

97. The examination papers should be issued to the Candidates in half sheets only, and one at a time. This will prevent a Candidate from spreading out the sheets on the table in an apparently careless manner, but so as to enable his nearest neighbour to look over and copy, or examine the problems. It will also enable the Examiner to look over and report upon the work on one half sheet, while the Candidate is at work upon another, and so on. When the errors are not too numerous, or when they are not from ignorance of the subject, the incorrect problems may be returned to the Candidate for correction, but in no case should the errors be pointed out by the Examiner, neither should any marks be made on the correct work of the problem, which would at once indicate how far or to what extent the work is correct. Should the problems be returned to the Examiner the second time incorrect, this would be a failure; and as the time allowed is considered ample for working out the papers carefully, this rule is expected to be strictly observed.

In certain cases problems may be corrected on morning following examination day.

98. When from the large number of the Candidates, it may be found impossible to look over the work, on the day of examination during the office hours, an hour in the morning of the following day may be allotted for the purpose of correcting the problems, but in no case should a Candidate have his problem returned to him for correction after he has made the second attempt.

Re Exn 4A

99. The paper (Exn. 4A) is only for those Candidates who present themselves for examination for the first time. It is intended not only to ensure on the part of the Candidate a knowledge of the meaning of a variety of terms of great use to the Navigator respecting which much ignorance exists at present, but at the same time to test his handwriting and spelling.

100. In using this paper, the Examiner will place a mark against the numbers of the particular questions which he selects for answers, and not less than ten questions should be selected. The Candidate will then write against the questions so marked his definition of the terms in a clear and legible hand, so as to prevent the possibility of any letter being mistaken. Attention should be paid to the spelling and writing of all grades of Candidates. The *supplementary viva voce* test should also be applied as usual.

Re questions on Deviation of the Compass. (Exn 7, Appendix G.)

101. In the questions on Deviation of the Compass (Exn. 7, Appendix G) the Examiner should indicate by a mark against at least twelve of the questions for answers, and those indicated must be correctly answered. The selected questions should be varied frequently, and no two Candidates should have precisely the same questions. The Candidate should be furnished with sheets of blank ruled paper which is supplied for that purpose with instructions that he is to write only on one side of the paper, and to answer each of the questions against which a mark is placed in a clear and legible hand, and to commence each answer by writing down the number of the question to which it relates in the margin left for that purpose. In answering question 19, besides giving a full explanation in writing, of the *tentative* method* of compass adjustment (accompanied by the usual *supplementary viva voce* test), the Candidates should be required to illustrate by diagrams how the poles of the magnets are placed with regard to the compass needle for correcting the semi-circular deviation, as well as the heeling error, and also how the soft iron should be placed for correcting the quadrantal deviation, or the Candidate may be tested by "Beall's Compass Deviascope," in which case it will not be necessary for him to give the written answer and sketches.

Viva voce examination

102. In the *viva voce* examination a reasonable time should be allowed for the Candidate to give his answers: No assistance should be given or leading question put.

Adjustment of sextant

103. Particular attention should be paid to the adjustments of the sextant, and the written answers should be given on the ruled paper in the same manner as the answers to the questions on Exn. 7, and the *supplementary viva voce* test applied as usual. Every Candidate should have a practical knowledge of what is known as the first three adjustments, and be able to read correctly *off* the arc, a supposed index error to be given by the Examiner as additive, as well as reading *on* the arc in the usual way.

Minor corrections.

104. All outstanding or minor corrections should appear in the margin of each problem paper; also on the chart papers Exn 9C and Exn. 9D; and unless all these corrections appear on the papers of the Candidate they will not be considered complete.

Examination to be commenced with that for Second Mate

105. In every case the Examination, whether for Only Mate, First Mate, or Master, is to commence with the problems for Second Mate.

Problems required as tests.

106. Examiners should bear in mind that the problems to be performed are required as tests, and for the purposes of an Examination, and not for sea-going or practical purposes alone.

107. The Candidates will be allowed to work out the various problems according to the method and the tables they have been accustomed to use.

Time allowed for Problems and Writings.

Time allowed for working problems.

108. *Candidates for Second Mates' Certificates of Competency* must complete the whole of their Examination in Navigation in *eight hours*, including the time allowed for writing the definitions (Exn. 4*a*), the paper on the adjustment of the sextant, and the correction of *all* errors and oversights; but

* See Appendix M.

the nautical problems on Forms "Exn. 4" and "Exn. 5" must be completed within *six hours*, and without the Candidates leaving the premises during that period.

109. *Candidates for Only and First Mates' Certificates* must complete the whole of their examination in Navigation in *twelve and-a-half hours*,* including the time allowed for the papers on the sextant; the chart; cyclones or revolving storms; and for the correction of *all* errors and oversights; but the nautical problems on Forms "Exn. 4," "Exn. 5," and "Exn. 6" must be completed within *six hours*, and without the Candidates leaving the premises during that period.

110. *Candidates for Certificates as Masters,' Ordinary*, must complete the whole of their examination in Navigation in *fifteen hours;* including the time allowed for the papers on the sextant; the chart; compass deviation; cyclones or revolving storms; and for the correction of *all* errors and oversights; but the problems on Forms "Exn. 4," "Exn. 5," and "Exn. 6," must be completed within *six hours*, and without the Candidates leaving the premises during that period

111. *Candidates after finishing the problems required of the respective grades* on the first day of examination should proceed, until the end of that day, with such subjects as the definitions, sextant, chart, and Question 19 of Form "Exn. 7."

112. *The Summer Problem* (*Exn. 6a*) must on no account be given out to any of the grades on the first day of the examination, but should be the commencement of the Candidate's work on the second day, and on completion of this problem the Candidates for Masters' Certificates should proceed with the problems on paper "Exn. 7."

113. *Candidates for Foreign-going Steam-ship Certificates of Competency* will be allowed the same amount of time to perform their navigation, &c., as hereinbefore laid down for the respective grades for the Ordinary Foreign-going Certificates.

114. *Deviation of the Compass.*—A period not exceeding eleven hours will be allowed to Candidates for the completion of the whole of the examination in the Syllabus, including the correction of all errors and oversights in both the problems and writings.

115. Punctually at the expiration of the prescribed time all the papers should be called up, whether completed or not, and if not completed, the Candidate will be declared to have failed, unless the Port Officer or the Examiner see fit to lengthen the period in any special case If, however, the period is lengthened in any case, the special circumstances of that case, and the reasons for lenthening the period, together with the time allowed, must be reported to the Government by the Examiners, in the column for "remarks" on the Form Exn 14. It should be noted that the periods prescribed in the foregoing paragraphs are not intended to include the time occupied by the *viva voce* part of the examination. Additional time allowed in special cases.

116. It is anticipated that but few of the Candidates for Certificates of Competency for any of the foregoing grades will require the whole of the time herein allowed for completing their Examination in Navigation; and ample time has been prescribed, so that Candidates may perform their work in a careful, clear, and legible manner, and to the entire satisfaction of the Examiners.

Degree of Precision required in the Solution of the Problems.

117. In order to prevent any misapprehension as to the degree of precision required by the Regulations in working out the various problems in the Examinations for Masters' and Mates' Certificates, the attention of Examiners and Candidates is particularly directed to the following Instructions: –

(*a.*) Candidates are expected to work out their answers to all problems within or not to exceed a margin of *one mile of position* from a correct result (*e.g.*, in problems where the answer required is a latitude, longitude, or distance), excepting in finding the

* A Candidate other than Second Mate who may not previously have passed an examination may be allowed the time occupied in writing his definitions on Exn. 4*a*, in addition to the above.

ship's position by "Sumner's" method, where a margin of 2½ miles will be allowed.

(*b.*) In such problems as the "Amplitude" and "Alt-Azimuth," where the bearings, deviations, &c, only are required, a margin of 2′, or 3′, from a correct result will be sufficiently accurate

(*c.*) In no problem is the Candidate for an "ordinary" Certificate required by the Regulations to correct for *second differences* in taking out the quantities from the Nautical Almanac.

(*d.*) In solving the "Time Azimuth" problem, an answer not exceeding half a degree from the exact result will be sufficiently near. But in all cases the actual latitude, declination, and time used, together with the exact bearing (from the North or South) as given in the tables, must be clearly shown by the Candidate on his papers.

(*e.*) In interpolating for the correct deviation to be applied in solving the Chart question, Papers "Exn. 9 C." and "Exn. 9 D," it will usually be sufficiently near if the Candidate works throughout with the nearest degree of deviation taken from the "Deviation Card," and even in cases where the deviations may vary but little, the nearest half degree used throughout will be sufficiently precise, and will at the same time prove whether the Candidate understands the method of arriving at the amount of, and applying, deviations. It is not necessary that the Candidate should waste his time in solving the course to *odd minutes* as is sometimes done.

(*f.*) In calculating the correction to apply to the Soundings, Question 5 of Paper "Exn. 9 D," the Candidate is not required to work out to the exact inch, as is sometimes done. It will be sufficiently near if he brings his answer within half a foot or so of a precise result.

It must be clearly understood in reading the foregoing Instructions that it is always provided the work of the Candidate is correct in principle.

Supplementary viva voce *Examination on written Papers.*

118. An impression prevails in regard to the examination of Masters and Mates, that so long as a Candidate can commit to paper correct answers to the various questions requiring written answers (*e.g., Forms Exn.* 4*a*, *Exn.* 7, *Exn.* 9*a*, *Exn.* 9*c*, *Exn.* 32. 70, *&c.*), no matter how indicative the answers may be of their having been learnt off by rote *only*, the duty and responsibility of the Examiners are at an end, and that they have no power or authority to reject a Candidate should his written answers be correct.

119. Lest, therefore, such an impression should prevail, Candidates for Certificates of Competency should bear in mind that they are not only expected to give correct written answers, which may merely be learnt off by rote, but they are expected to possess an intelligent knowledge of the various subjects prescibed in the Regulations, particularly as regards the important subject of the Deviation of the Compass.

120. This result may be easily attained by the Examiner putting a few *viva voce* questions to the Candidate as the papers are brought up for inspection, or at any subsequent time if more convenient. The oral questions (suggested by the printed questions and the answers given) should be such that the Examiner may satisfy himself that the candidate possesses a real knowledge of what he has written, and should be confined strictly to the subjects of the printed questions. Should the candidate then exhibit ignorance of the subjects, the Examiner (who is in a position to judge of the real knowledge the man before him possesses) should deal with him at his discretion, notwithstanding that the candidate may have written all the answers correctly by rote.

121. When an Examiner finds it necessary to fail a Candidate in this *supplementary viva voce* test, a memorandum containing the particulars of the points on which the candidate was ignorant, *i.e., the identical questions and the identica*

answers given, must in each case be attached to his examination papers, when forwarded in the usual course to the Port Officer, or the particulars may be set forth by the Examiner in the margins of the candidate's papers in red ink.

122. If the Candidate passes, he will receive the Form Exn. 16, upon which the Government, will issue the Certificate to the candidate, whose testimonials, &c., will be returned at the same time. Form Exn. 16 Completion of examination

Special Notice to Candidates.

123. The attention of Candidates is specially called to the following Regulations :—

124. Candidates are required to appear at the examination-room punctually at the time appointed.

125. Candidates are prohibited from bringing into the examination-room books, paper, or memoranda of any kind whatever. The slightest infringement of this regulation will subject the offender to all the penalties of a failure, and he will not be allowed to present himself for re-examination for a period of three months.

126. In the event of any Candidate being detected in defacing, blotting, writing in, or otherwise injuring any book or books belonging to the Government, the papers of such Candidate will be detained until the book or books so defaced be replaced by him. He will not, however, be at liberty to remove the damaged book, which will still remain the property of the Government.

127. In the event of any Candidate being discovered referring to any book or memoranda. copying from another, or affording any assistance or giving any information to another, or communicating in any way with another, during the time of examination or copying any part of the problems for the purpose of taking out of the Examination rooms, he will subject himself to all the penalties of a failure, and he will not be allowed to be examined for a period of six months.

128. No Candidate will be allowed to work out his problems on a slate or on waste paper.

129. No Candidate will be permitted to leave the room until he has given up the paper on which he is engaged.

130. Candidates will find it more convenient both here and at sea, to correct the declination and other elements from the Nautical Almanac by the "hourly differences." which have been given in that work in order to facilitate such calculations ; they will thereby render themselves independent of any proportional or logarithmic table for such purpose.

131. The corrections by inspection from tables given in some of the works on Navigation will not be allowed (*see* Tables IX, XI and XXI in Norie's Epitome, &c.) ; every correction must appear on the papers of the Candidates.

132. Any candidate who may be guilty of insolence to the Examiner or of other misconduct will render himself liable to the postponement of his examination, or, if he has passed, to the detention of his Certificate for such period as the Government may direct.

133. For rules as to amount of time allowed to perform the work, *see* page 36.

Masters' and Mates' Voluntary Examinations in Steam.

134. These examinations are limited to Masters and First or Only Mates who are possessed of or entitled to Certificates of Competency, and are provided for the purpose of giving them an opportunity of undergoing a voluntary examination as to their practical knowledge of the use and working of the steam engine. They are conducted under the superintendence of the Port Officer at such times as they may appoint for the purpose ; and the Examiners are selected by the Government from the Engineer-Surveyors appointed under the Indian Steam Ships Act, 1884. *Voluntary Examinations in Steam.*

135. Any Master or Mate desiring to be examined in Steam must deliver to the Port Officer a statement in writing to that effect, upon the Form of Application (Exn. 2), and the applicant's Certificate of Competency must be delivered to the Port Officer along with his statement. If he is about to pass an examination for a Certificate of Competency at the same time, the applications should be sent in together. Application, how to be made. Exn. 2.

136. A fee of Rs. 12 must be paid by the applicant for the examination *in Steam*, and the Port Officer will thereupon inform him of the time and place at which he is to attend to Fee to be paid Conduct of examination, &c.

be examined, and the examination will then and there proceed in the same manner as the other examinations. If the applicant fails, and has given in his Certificate, it will be at once returned to him.

Record of Certificate. Exn. 14.

187. If the applicant passes, the Report (Exn. 14.) and the Certificate of Competency with the Form (Exn. 2.) will be sent to the Government; the words "*Passed in Steam,*" with the date and place of examination, will then be entered on the Certificate and its counterpart, and the Certificate will be sent to the Port Officer to be delivered to the applicant in the usual manner.

Failure.

138. If the applicant fails he may not present himself for re-examination until the expiration of three months from the date of failure.

Extent of examination.

139. The examination is for the most part *vivávoce*, and extends to a general knowledge of the practical use and working of the steam engine, and of the various valves, fittings, and pieces of machinery connected with it. Intricate theoritical questions on calculations of horse-power or areas of cylinders and valves, or any of the more difficult questions which appertain to steam engines and boilers, will not be asked. The examination will in fact be confined to what a Master of a steam-vessel may be called upon to perform in the case of the death, incapacity, or delinquency of the engineer.

140. Examiners are to be careful in their examinations to satisfy themselves that applicants really do know the names and uses of the various parts of engines and boilers, and their connecting pipes, valves, cocks, &c. Practical knowledge, as distinguished from theories, abstruse calculations, and book learning, is to be the test of the applicant's fitness to have his Certificate indorsed.

Where examination to be conducted

141. The Examiner should arrange to conduct part of the examination in the engine-room of a Steam-ship, unless from circumstances he finds it impossible to do so; and if an oppportunity offer the applicant should be permitted, under the guidance of the Examiner, to start and stop the engine of some vessel which may have her steam up.

142. The Examiner, in sending in his report of examinations of Masters and Mates in steam, should state where the examination has been held.

Examination in elementary questions.

143. Candidates will be required to give written answers to sixteen out of twenty questions taken from a book of Elementary Questions pulished by the Government.* These questions will be altered from time to time without notice. The twenty questions are not to be difficult, theoretical, or book questions, but are to be such as any man of ordinary capacity ought to answer who has any "*practical knowledge of the use and working of the steam-engine.*"

Answers to be sent to the Board of Trade.

144. These questions, with the Candidate's answers, should be sent to the Government, with the reports, after each examination

145. These answers will also assist in enabling the Government to decide any question that may hereafter arise in cases where it is alleged that applicants have been improperly passed, or improperly rejected.

Candidates referring to books, &c., to be put down as failed.

146. The Examiners will be careful that if any Candidate refers to any book or paper or memorandum, or obtains information from another Candidate during the examination, he will be treated as having failed, will forfeit his fee, and will not be allowed to be re-examined for a period of three months.

In cases of failure Examiner to report questions that decided it.

147. The Examiners will report in the case of failure, the nature of the question or questions that decided the failure, or the point in the management of the engine in which the Candidate was deficient.

Service on board Steam-Ship unnecessary.

148. There is nothing in the Regulations requiring that applicants for the voluntary examination shall have served on board Steam-Ships; all that is required is that they shall have a "practical knowledge." Examiners will, of course, not fail to appreciate the fact, when passing applicants, that practical knowledge is best gained in the engine-room; and the examination of an Officer who does not produce official evidence of service in Steam Ships, and of experience of engines, must necessarily be more searching than in the case of one who produces evidence of such service and experience.

See Appendix. Q.

APPENDIX A.

N.B.—*The Candidate is to write a short definition against so many of the following terms as may be marked with a cross by the Examiner. The Examiner will not mark less than* 10. *The writing should be clear, and the spelling should not be disregarded.*

1. The Equator.
2. The Poles.
3. A Meridian.
4. The Ecliptic.
5. The Tropics.
6. Latitude.
7. Parallels of Latitude.
8. Longitude.
9. The Visible Horizon.
10. The Sensible Horizon.
11. The Rational Horizon.
12. Artificial Horizon and its use.
13. True Course of a Ship.
14. Magnetic Course.
15. Compass Course.
16. Variation of the Compass.
17. Deviation of the Compass.
18. The Error of the Compass.
19. Lee Way.
20. Meridian Altitude of a Celestial Object.
21. Azimuth.
22. Amplitude.
23. Declination.
24. Polar Distance.
25. Right Ascension.
26. Dip or Depression of the Horizon.
27. Refraction.
28. Parallax.
29. Semi-diameter.
30. Augmentation of Moon's Semi-diameter.
31. Observed Altitude.
32. Apparent Altitude.
33. True Altitude.
34. Zenith Distance.
35. Vertical Circles.
36. Prime Vertical.
37. Civil Time.
38. Astronomical Time.
39. Sidereal Time.
40. Mean Time.
41. Apparent Time.
42. Equation of Time.
43. Hour Angle of a Celestial Object.
44. Complement of an Arc or Angle.
45. Supplement of ditto.

APPENDIX B.

Adjustments of the Sextant.

The Applicant will answer in writing, on paper which will be given him by the Examiner, all the following questions, numbering his answers with the numbers corresponding to the questions :—

Question.

1. What is the first adjustment of the sextant ?
2. How do you make that adjustment ?
3. What is the second adjustment ?
4. Describe how you make that adjustment ?
5. What is the third adjustment ?
6. How would you make the third adjustment ?
7. In the absence of a screw how would you proceed ?
8. How would you find the index error by the horizon ?
9. How is it to be applied ?
10. Place the index at error of minutes to be added, clamp it, and leave it.

(Note.—The Examiner will see that it is correct).

11. The Examiner will then place the zero of the vernier on the arc, not near any of the marked divisions, and the Candidate will read it.

Note.—In all cases the applicants will name or otherwise point out the screws used in the various adjustments.

(*The above completes the Examination of Second Mates.*)

Candidates for Only Mates', First Mates', and Masters' Certificates will be required to give, in writing, replies to the following questions, *in addition* to those required of Candidates for Second Mates' Certificates as above.

1. How do you find the index error by the Sun ?
2. The readings being { } What is the Index Error, and how do you apply it ?
3. What proof have you that those measurements or angles have been taken with tolerable accuracy ?

APPENDIX C.

EXAMINATION OF MASTERS AND MATES IN THE INTERNATIONAL CODE OF SIGNALS.

Instructions to Examiners.

The Government desire to direct the attention of the Examiners to the principal points connected with the International Code of Signals (which is to be treated as a subject in Navigation) as to which Candidates for Examination should be questioned in order to qualify for Certificates of Competency.

The Government would recommend to the Examiners a perusal of the *Report of the Signal Committee* of 1855 (which will be found at the commencement of the Signal Book), and also the *first few pages of the Book*. The information therein given will be found sufficient to make the Examiners theoretically acquainted with the characteristics of the Code, and the advantages it claims to possess over other Codes, and will enable them to appreciate and urge upon Candidates for Examination the facilities which this System of Signalling affords for easy and rapid communication.

The "comprehensiveness" and "distinctness" of the International Code are its chief recommendations.

The form of the Hoist generally indicates the nature of the Signal made, so that an observer can at sight understand the character of the Signal he sees flying.

The annexed plate gives examples which illustrate this.

The Examinations should tend to elicit a knowledge of the distinctive features of the Code above alluded to.

With this object the Examiners should make the 2, 3, and 4 Flag Signals on the Frame board which is furnished for the purpose *(always taking care first to show the Ensign and the Code Pennant at the Gaff)*,* questioning the Candidates as to the distinguishing Forms of the respective Hoists (*See Plate annexed*), which will be indicated according as a Burgee, or a Pennant, or a Square Flag, is uppermost.

The Candidate ought to know how to find in the Signal Book the communication or the inquiry he desires to make, and how to make the Signal. The Signal to be made should *invariably* be sought for by the Candidate in the Vocabulary and Index, Part II, and never in Part I.

The Candidate ought to know how to interpret a Signal.

The Examiner should place a Signal on the Frame board and vary the Signal by showing a 2 or 3 Flag Signal, or a "Geographical" or a "Vocabulary" Signal, or the name of a Merchant Ship or a Ship of War.

The two latter signals would not of course be found in the Signal Book. The Candidate ought to point them out in the *Code List of Ships*.

A Candidate ought to be able to read off a Signal at sight, so far as to name the Flags composing the Hoist.

He ought to know the use of the Code Pennant, and of the Pennants C. and D., "Yes" and "No."

The Candidate should be practised in the use of the Spelling Table, by being made to spell his own name, or some word not in the Vocabulary of the Code.

A knowledge of the Distant Signals should be required of the Candidate, their object and the mode of signalling by the Distant Code, which will be found at the end of the Signal Book.

For this purpose two Black Balls, two Black Square Flags, and two Black Pennants will be furnished with the Frame board, and the Candidate should be required to make one or two Distant Signals, and to read off one or two made by the Examiners.

The Ball being the distinguishing symbol of the Distant Signal, any Pennants or Flags of the Code may be employed in conjunction with it, irrespective of colour. The Black Pennants and Flags are merely sent as showing best in the light background of the Frame board.

The Examiners should be careful to ascertain that the Candidate possesses a knowledge of the Distress Signals which came into operation November 1st, 1873.

Semaphores.

A plate at the end of the Signal Book explains the method by which the arms of the Semaphore are made to represent by their position (up, down, or horizontal,) the three symbols used for Distant Signalling, viz. a Flag, a Ball, or a Pennant. Before making Signals with the Semaphore, the Black Disc with the white rim should be placed on the top of the Semaphore Mast, as it properly forms a part of the Mast itself.

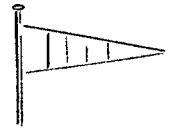
The International Code is used on board Her Majesty's Ships and it has been adopted by all the principal maritime powers for their Imperial as well as for their Mercantile Navies.

Note.—The International Code of Signals, with the Code List, si prepared by the Registrar-General of Shipping and Seamen, and may be had of the Publishers, Messrs. Spottiswood & Co., 54, Gracechurch Street, London, and the principal Booksellers at the various ports.

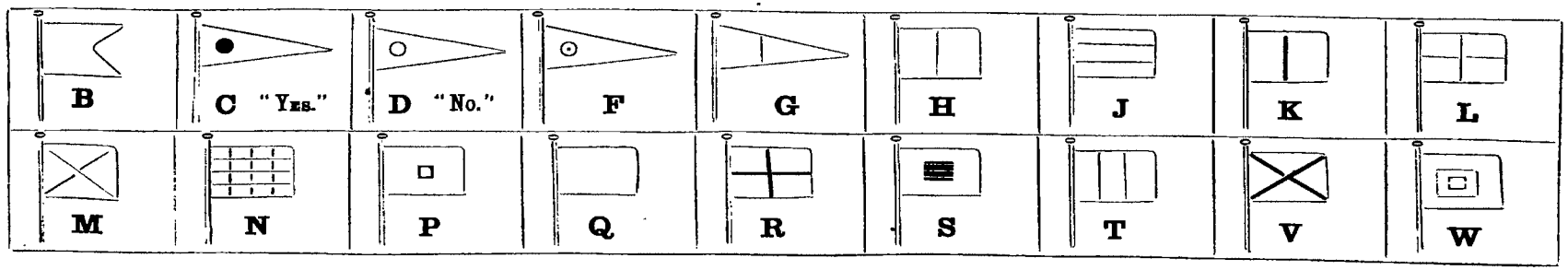
The Official Mercantile Navy List and Maritime Directory published for the use of Merchants, Shipowners, Shipbrokers, and others, may be obtained in like manner, price 12*s*.

* The object of this is, of course, to distinguish the Signals from those o another Code.

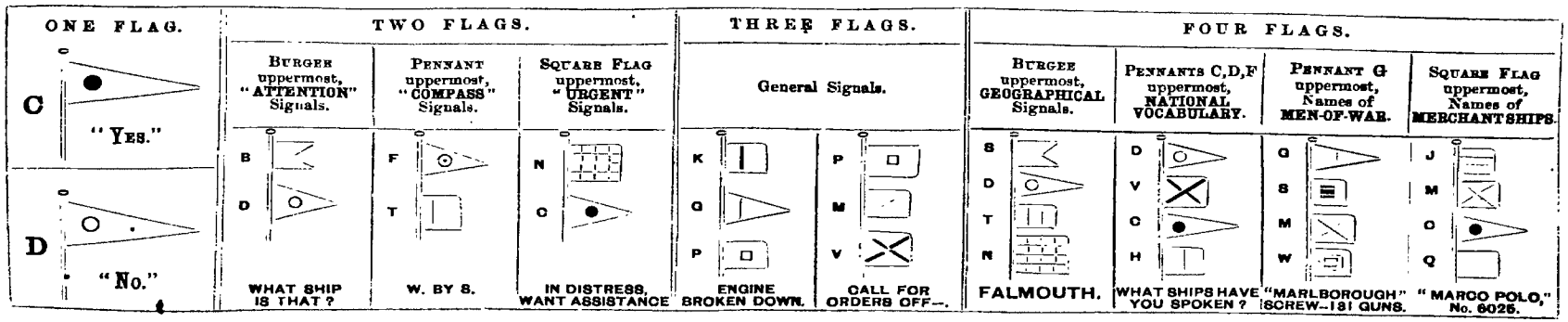
FLAGS OF THE INTERNATIONAL CODE OF SIGNALS.

"CODE SIGNAL" AND  "ANSWERING PENNANT."

N.B.—When used as the "Code Signal," this Pennant is to be hoisted under the "Ensign;" when used as the "Answering Pennant," where best seen.



The following examples will serve to illustrate how the *form of a Hoist* will usually denote the *nature of the Signal* made :—



APPENDIX D.

Regulations respecting Lights and Fog Signals and Steering and Sailing Rules Issued by the Board of Trade.

NOTICE.

The Board of Trade have had their attention drawn to the necessity of a more strict examination of applicants for Certificates of Competency in their knowledge of the regulations for preventing collisions at sea.

In order that the rule of the road at sea may be better understood, and that a uniform system of examination may prevail, the Board of Trade have issued the following catechism.

This catechism has received the approval of the Trinity House and Admiralty in England, and of the Council of the Admiralty of France.

The Board of Trade attach very great importance to a thorough knowledge of the steering and sailing rules on the part of every applicant for a Certificate of Competency, and a thorough examination on the part of the examiners.

All applicants for examination, whether for certificates as masters or mates, are to be examined as to their knowledge of the steering and sailing rules each time they present themselves for examination.

Questions suggested by the following heads of Examination are to be asked in addition to, and are not to supersede, any other questions proper and necessary to be asked by the Examiner.

The following questions need not be adhered to literally by the Examiner, and are not all to be asked ; but the substance of the leading questions should be asked, and all that are asked should be satisfactorily answered, before an applicant is reported to have passed his examination. The Examiner should make such a selection of the questions as each case appears to him to require.

Thomas Gray,
Assistant Secretary.

Board of Trade,
Marine Department.

Heads of Examination in Regulations respecting Lights and Fog Signals and in the Steering and Sailing Rules.

1. What light or lights are required by the regulations to be exhibited by sailing vessels at anchor ?

One light only, viz., a white light.

2. What light or lights are required by the regulations to be exhibited by steam-ships at anchor ?

The same as for sailing vessels.

3. Where is the anchor light to be exhibited ?

Where it can best be seen. It must of course be placed where there is the least possible chance of obstruction from spars, ropes, &c., &c.

4. To what height may the anchor light be hoisted ?

It may be exhibited at any height where it can best be seen not exceeding 20 feet above the deck.

5. What is the description of the lantern containing the anchor light required by the regulations ?

A globular lantern of not less than eight inches in diameter.

6. In what direction or directions must the anchor light show ?

It must show a clear, uniform, and unbroken light, visible all round the horizon.

7. At what distance must it be visible ?

At least one mile.

8. What is the number of lights required by the regulations to be carried by sailing ships when under weigh at night ?

Two side-lights, and to have in readiness a white light or a flare-up light to show from their stern to any vessel overtaking them.

9. Of what colour are these lights, and how are they to be placed on board the ship ?

A green light on the starboard side, and a red light on the port side.

10. What description of light must be shown from the sides of sailing vessels under weigh ; and over how many points of the compass, and in what directions, and how far, are they required to show ?

Each light must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass ; so fixed as to throw the light from right ahead to two points abaft the beam on the starboard and port sides respectively

and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

11. What lights are they to carry when being towed at night ?

The same.

12. Are the side-lights required to be fitted with screens ; and if so, of what length, and how ?

Yes on the inboard side ; at least three feet in length, measuring forward from the light. They are to be so fitted as to prevent the coloured lights from being seen across the bows.

13. What is the number of lights required by the regulations to be carried by steam ships when under steam at night ?

Three lights, and to have in readiness a white light or flare-up light to show from their stern to any vessel overtaking them.

14. Of what colour are these lights, and how are they to be placed on board the ship ?

A white light on or in front of the foremast at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth. A green light on the starboard side, and a red one on the port side.

15. Over how many points of the compass, in what direction, and how far, is the foremast-head light of a steamer required to show ?

Over 20 points, viz., from right ahead to two points abaft the beam on both sides. It must be of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

16. Are the side-lights required to be fitted with screens ; and if so, of what length ?

The green and red lights are to be fitted with screens on the inboard side, extending at least three feet forward from the light, as in the case of sailing vessels.

17. Over how many points of the compass, in what directions, and how far, are the coloured side-lights of steamers required to show ?

The side-lights must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass, on each side of the ship, *i.e.*, from right ahead to two points abaft the beam on the starboard and port sides respectively, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles.

18. What description of lights are steamers required by the regulations to carry when they are not under steam, but under sail only ?

Side-lights only, the same as sailing vessels.

19. What exceptional lights are to be carried by small sailing vessels in certain cases ?

Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use ; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

20. What description of lights are pilot vessels required to carry when on their stations on pilotage duty ?

A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

21. What description of lights are pilot vessels required to carry when not on their station on pilotage duty ?

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

22. What lights are open boats and fishing vessels of less than 20 tons net register required to carry when under way and not actually engaged in fishing.

Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights ; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

23. What lights are fishing vessels and fishing boats of 20 tons net register, or upwards, required to carry when under way and not actually engaged in fishing?

They must carry similar lights to those of other ships when under way.

24. What lights are steam trawlers of 20 tons gross register, or upwards, whilst actually engaged in trawling, and not being stationary, required to carry?

All steam-vessels engaged in trawling must carry either one of the two following arrangements of lights, whichever of the two may be the more convenient:—

(*a*) The usual green and red side-lights, and foremast-head light, similar to those carried by other steam-ships; or

(*b*) They must carry on or in front of the foremast-head, and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side; such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: and (2) a white light in a gobular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform, and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet, nor more than 12 feet.

25. What lights are sailing trawlers whilst actually engaged in trawling, and not being stationary, required to carry?

All sailing vessels, of whatever tonnage, whilst engaged in trawling, must carry either one of the three following arrangements of lights, whichever of the three, (*a*), (*b*), or (*c*), may be the most convenient:—

(*a*) They may carry the green and red side-lights similar to those of other sailing ships; or

(*b*) They may carry on or in front of the foremast-head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side and the red light from right ahead to four points abaft the beam on the port side; and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet; or

(*c*) They may carry a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon, and visible on a dark night, with a clear atmosphere, for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by, another ship or vessel in sufficient time to prevent collision.

26. What lights are vessels whilst actually engaged in drift net fishing required to carry?

All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than 5 feet and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character and contained in lanterns of such construction as to show all round the horizon, on a dark night, with a clear atmosphere, for a distance not less than three miles.

27. What lights are vessels whilst actually engaged in line fishing required to carry?

A vessel engaged in line fishing is required to carry the same lights as a vessel engaged in drift net fishing.

28. If a vessel, when fishing, becomes stationary in consequence of her gear getting fast to a rock or other obstruction, what signal must she make?

She must show the same light, and if a fog, mist, or falling snow prevail, she must make the same fog signals as if she were at anchor.

29. What lights are fishing vessels and open boats required to exhibit when at anchor?

Between sunset and sunrise they must exhibit a white light, visible all round the horizon at a distance of at least one mile, the same as any other vessel.

30. What sound signals are fishing vessels required to make whilst engaged in fishing in thick weather?

In fog, mist, or falling snow, a drift net vessel attached to her nets, and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

31. May fishing vessels and open boats use flare-up lights, and if so, at what part, or parts, of the vessel should they be exhibited?

Yes. Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

32. Do these regulations referring specially to fishing vessels and boats apply to foreign vessels, and to all parts of the world?

No, with the exception of the *first paragraph* of Article 10 of the regulations, they apply only to British vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre.

33. What lights are steam-ships required to carry when towing other ships?

A steam-ship, when towing another ship, shall, in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light which other steam-ships are required to carry.

34. What light is a ship which is being overtaken by another required to show?

A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

35. Describe the lights and the day signals that vessels employed in laying or picking up a telegraph cable are required to carry.

A ship, whether a steam-ship or a sailing ship employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line over one another, not less than six feet apart: the highest and lowest of these lights shall be red and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than her foremast-head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

36. Describe the lights and the day signals that vessels which from any cause are not under command are required to carry.

A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same

position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles ; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of but not lower than her foremast-head, three black balls or shapes, each two feet in diameter.

37. Are the above-mentioned ships to carry side-lights ?

The above ships, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

38. What are the previous mentioned shapes and lights intended to indicate to approaching ships ?

These shapes and lights are to be taken by approaching ships as signals that the ship using them is not under command, and cannot therefore get out of the way.

39. Do these rules prevent squadrons and convoys from carrying special lights ?

No. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war, or for ships sailing under convoy.

40. What sound signals are steam-ships and sailing ships required by the regulations to be provided with ?

A steam-ship shall be provided with a steam whistle or other efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by bellows or other mechanical means, and also with an efficient bell. A sailing ship shall be provided with a similar fog-horn and bell.

41. When are these signals to be used ?

In fog, mist, or falling snow, whether by day or night.

42. What sound signal is to be made by steam-ships and sailing ships when not under way ?

A steam-ship and a sailing ship when not under way shall, at intervals of not more than two minutes, ring the bell.

43. What sound signal is required to be made by a steam-ship when under way ?

A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

44. What sound signals are required to be made by sailing ships when under way ?

A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

45. Do the regulations require ships to take any other precaution during thick weather ?

Yes. Art. 13 says every ship, whether a sailing ship or steam-ship, shall, in a fog, mist, or falling snow, go at a moderate speed.

46. Is it optional for a steam-ship to make any other signals with her steam whistle ?

Yes; but only to vessels in sight, *i.e.*, not to vessels which are so obscured by fog, mist, or falling snow that they cannot be seen, though their whistles may be heard.

Art. 19 provides that in taking any course authorised or required by the regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.:—

One short blast to mean "I am directing my course to starboard :"

Two short blasts to mean "I am directing my course to port :"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

47. What precaution is to be taken by steamers approaching another vessel ?

If there is risk of collision, the steamer is to slacken speed, or, if necessary, stop and reverse.

48. If you see two white lights in a vertical line one over the other, what do they denote as regards the vessel carrying them ?

They denote the presence of a steamer towing with her side lights not within sight on account of distance, fog, &c. ; or a vessel end on to me engaged in drift net fishing, or in line fishing, or it may be a steam trawler end on, or within 2 points of being end on, to me.

49. If you see a green, or a red, light with a white light below, what do they denote?

They denote the presence of either a sailing, or a steam, vessel engaged in trawling.

50. If you see both the green and red lights with a white light below them, what do they denote?

They denote the presence of a sailing trawler coming end on to me.

51. If you see a white light alone, what does it denote as regards the ship carrying it?

It denotes the presence of a vessel or boat at anchor; or a pilot vessel on her station; or the mast-head light of a vessel, under steam, with her side-lights not within sight on account of distance, fog, &c., or a fishing vessel stationary through her gear getting fast to some obstruction, or a sailing traveller engaged in trawling (1) under one arrangement of lights heading so that her side-lights or obscured, (2) under another arrangement from the red pyrotechnic light not having been exhibited, or it may be a light shown from the stern of a vessel which is being overtaken.

52. If you see a green or a red light without a white light, or both a green and a red light without a white light, is the vessel carrying the light or lights seen, a vessel under steam or a vessel under sail?

A vessel under sail.

53. How do you know?

Because there is no white mast-head light.

54. If you see a white light over a coloured light, is the vessel a vessel under sail or a vessel under steam?

A vessel under steam. The mast-head light denotes that the vessel is under steam.

[The Examiner will then take one model of a vessel, which he will place on the table, and call it A. He will then take the mast or stand with a white and a red ball on it, and place it at the other end of the table and call it B.

The Examiner should be careful that the model of one vessel only is used when the questions numbered 55 to 60 are asked.]

55. A is a steamer going north, seeing a white light and red light right ahead at B. Are A and the vessel B showing the two lights meeting end on or nearly end on, or is B passing A, or is B crossing the path of A, and in what direction, and how do you know?

Passing to port, because if I see a red light ahead, I know that the head of the vessel carrying that red light must be pointing away in some direction to my own port or left hand. The ship showing the red light has her port or left side more or less open to A.

56. If A is going north, within what points of the compass must the vessel B showing the white and red lights be steering?

B must be going from a little W. of S. to W.N.-W.

57. How do you know this?

Because the screens being properly fitted, I could not see the red light of B at all with the vessel's head in any other direction.

58. A is a steamer going north, and seeing a white and green light ahead. Are A and B meeting, or is B passing A, or is B crossing the course of A, and in what direction; and how do you know?

B is passing to starboard of A, because if I see a green light ahead, I know that the head of the vessel carrying that green light must be pointing away in some direction to my starboard or right hand. The ship showing the green light has her right or starboard side more or less open to me.

59. As A is going north, within what points of the compass must the vessel showing the white and green lights be steering?

B must be going from a little E. of South to E.N.-E.

60. How do you know?

Because the screens being properly fitted, I cannot see the green light at all with the vessel's head in any other direction.

61. If a steamer A sees the *three* lights of another steamer B ahead or nearly ahead, are the two steamers meeting, passing, or crossing?

Meeting end on, or nearly end on.

62. Do the regulations expressly require the course of a ship to be altered to starboard in any case; and if so, when?

Yes; in the case of two steamers meeting end on, or nearly end on.

63. Do they expressly require the course of a ship to be altered to starboard in any other case; and if so, in what other?

No. It is not in any other case expressly required by the regulations.

[The Examiner should see that the candidate puts the models in the position indicated by the question 64, and following.]

64. If a steamer A sees another steamer's red light B on her own starboard side, are the steamers meeting, passing, or crossing; and how do you know?

Crossing, because the red light of one is opposed to the green light of the other; and whenever a green light is opposed to a red light, or a red light to a green light, the ships carrying the lights are crossing ships.

65. Is A to stand on; and if not, why not?

A has the other vessel B on her own starboard side. A knows she is crossing the course of B, because she sees the red light of B on her (A's) own starboard side. A also knows she must get out of the way of B, because Article 16 expressly requires that the steamer that has the other on her own starboard side shall keep out of the way of the other.

66. Is A to starboard or to port in such a case?

A must do what is right so as to get herself out of the way of B: it is generally preferable to pass under a ship's stern rather than attempt to cross her bows, but it depends entirely on the position and relative speed of the two ships, and therefore the regulations wisely leave the giving way ship to get out of the way in any manner that may be most desirable, so always that she does get out of the way.

67. If A gets into collision by porting, will it be because she is acting on any rule?

No; the rule does not require her either to port or to starboard. If she ports, and gets into collision by porting, it is not the fault of any rule.

68. If a steamer A sees the green light of another steamer B on her own (A's own) port bow, are the two steamers meeting, passing, or crossing; and how do you know?

Crossing, because the green light of one ship is shown to the red light of the other.

69. What is A to do, and why?

By the rule contained in Article 22 of the Regulations, A is required to keep her course, subject only to the qualification that due regard must be had to all dangers of navigation; and that due regard must also be had to any special circumstances which may exist in any particular case rendering a departure from that rule necessary in order to avoid immediate danger. The crossing ship B on A's port side must get out of the way of A, because A is on B's starboard side.

70. A, a steamer, sees the green light of another steamer, B, a point on her A's port bow. Is there any regulation requiring A to port in such a case; and if so, where is it to be found?

There is not any.

71. Are steam-ships to get out of the way of sailing ships?

If a steamer and a sailing ship are proceeding in such direction as to involve risk of collision, the steamer is to get out of the way of the sailing ship, unless the sailing ship is overtaking the steamer.

72. What is to be done by A, whether a steamer or a sailing ship, if overtaking B?

A is to keep out of the way of B.

73. When the by rules one of two ships is required to keep out of the way of the other, what is the other to do?

To keep her course. This is absolutely necessary to enable the commander of the ship required by the regulations to keep out of the way, to act with decision and promptitude, which he cannot possibly, unless he knows what the other vessel is going to do.

74. Is there any qualification or exception to this?

Yes. Due regard must be had to all dangers of navigation, and to any special circumstances which may exist in any particular case, and require a departure from the regulations to avoid immediate danger.

75. Is there any general direction in the steering and sailing rules; and if so, what is it?

Yes, it is this: that nothing in the rules shall exonerate any ship, or the owner, master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a propor look out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

76. Can you repeat article (———) of the regulations, I refer to the article containing the rule for (———)?

[The Examiner should repeat this question, naming a different article each time.]

77. What does the Act of Parliament provide as to the obligation of owners and masters in obeying the regulations respecting lights, fog signals, and steering and sailing?

Section 27 of "the Merchant Shipping Act Amendment Act, 1862," provides that owners and masters shall be bound to obey the regulations, and it also provides that in case of wilful default

by the master or owner he shall be deemed to be guilty of a misdemeanor for each infringement.

78. What do breaches of the regulations imply ?

If an accident happens through non-observance of the regulations, it implies wilful default on the part of the person in charge of the deck at the time, unless it is shown to the satisfaction of the court hearing the case that the special circumstances of the case rendered a departure from the rules necessary.

79. If collision ensues from a breach of there gulations, who is to be deemed in fault for the collision ?

The person by whom the regulations are infringed, unless the court hearing the case decides to the contrary.

80. Is there any special rule for steam-ships navigating narrow channels ?

In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which is on the starboard side of such ship.

81. Do the regulations apply to sea-going ships in harbours and in rivers ?

Yes: unless there is any rule to the contrary made by a competent authority.

82. Do they apply to British ships only ?

No, to foreign ships as well, with the exception of paragraphs (*a*), (*b*), (*c*), (*d*), (*e*), (*f*) and (*g*) of Article 10, which apply to only British fishing vessels.

83. Do you know where the present regulations are to be found ?

Yes, in the Orders in Council of the 11th August 1884, the 30th December 1884, and 24th June 1885. Copies are given away on application to the Board of Trade.

84. Is one ship bound to assist another in case of collision ?

Yes.

85. What is the penalty for default ?

If the master or person in charge of the ship fails to render assistance without reasonable excuse, the collision is, in absence of proof to the contrary, to be deemed to be caused by his wrongful act, neglect, or default.

86. Is there any other penalty attached to not rendering assistance ?

Yes. If it is afterwards proved that he did not render assistance, his certificate may be cancelled or suspended by the court investigating the case.

87. Is it not expected that you should understand the regulations before you take charge of the deck of a ship ?

It is.

88. Why ?

If I do not understand them and am guilty of default, the consequences will be very serious to me.

89. What would be a serious offence ?

To cause a collision by porting the helm or doing anything not required by the regulations and without due consideration.

Regulations for preventing collisions at sea. Order in Council of 11th August 1884.

Preliminary.

Art. 1. In the following rules every steam-ship which is under sail and not under steam is to be considered a sailing ship ; and every steam-ship which is under steam, whether under sail or not, is to be considered a ship under steam.

Rules concerning Lights.

Art. 2. The lights mentioned in the following Articles, numbered 3, 4, 5, 6, 7, 8, 9, 10 and 11, and no others, shall be carried in all weathers, from sunset to sunrise.

Art. 3. A sea-going steam-ship when under way shall carry—

(*a*) On or in front of the foremast, at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth, a bright white light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 20 points of the compass ; so fixed as to throw the light 10 points on each side of the ship, viz. from right ahead to two points abaft the beam on either side ; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

(*b*) On the starboard side, a green light so constructed as to show an uniform and unbroken light over an arc of the

horizon of 10 points of the compass; so fixed as to throw the light from right ahead to 2 points abaft the beam on the starboard side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*c*) On the port side, a red light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass; so fixed as to throw the light from right ahead to 2 points abaft the beam on the port side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*d*) The said green and red side-lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

Art. 4. A steam-ship, when towing another ship, shall in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position, as the white light which other steam-ships are required to carry.

Art. 5. (*a*.) A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of, but not lower than, her foremast-head, three black balls or shapes, each two feet in diameter.

(*b*.) A ship, whether a steam-ship or a sailing ship, employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over another, not less than six feet apart: the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than, her foremast-head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

(*c*.) The ships referred to in this Article, when not making any way through the water, shall not carry the side-lights, but when making way, shall carry them.

(*d*.) The lights and shapes required to be shown by this Article are to be taken by other ships as signals that the ship showing them is not under command, and cannot therefore get out of the way. The signals to be made by ships in distress and requiring assistance are contained in Article 27.

Art. 6. A sailing ship under way, or being towed, shall carry the same lights as are provided by Article 3 for a steam-ship under way, with the exception of the white light, which she shall never carry.

Art. 7. Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

Art. 8. A ship, whether a steam-ship or a sailing ship, when at anchor, shall carry, where it can best be seen, but at height not exceeding 20 feet above the hull, a white light, in a globular lantern of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light visible all round the horizon at a distance of at least one mile.

Art. 9. A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but

shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

Art. 10. Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

The following portion of this article applies only to fishing vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre :—

(*a*) All fishing vessels and fishing boats of 20 tons net registered tonnage, or upwards, when under way and when not required by the following regulations in this article to carry and show the lights therein named, shall carry and show the same lights as other vessels under way.

(*b*) All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than five feet, and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night with a clear atmosphere, for a distance of not less than three miles.

(*c*) A vessel employed in line fishing with her lines out shall carry the same lights as a vessel when engaged in fishing with drift nets.

(*d*) If a vessel when fishing becomes stationary in consequence of her gear getting fast to a rock or other obstruction, she shall show the light and make the fog signal for a vessel at anchor.

(*e*) Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this Article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

(*f*) Every fishing vessel and every open boat when at anchor between sunset and sunrise shall exhibit a white light visible all round the horizon at a distance of at least one mile.

(*g*) In fog, mist, or falling snow, a drift net vessel attached to her nets and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

Art. 11. A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

Sound Signals for Fog, &c.

Art. 12. A steam-ship shall be provided with a steam whistle or toher efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog horn to be sounded by a bellows or other mechanical means, and also with an efficient bell.* A sailing ship shall be provided with a similar fog-horn and bell.

In fog, mist, or falling snow, whether by day or night, the signals described in this Article shall be used as follows; that is to say—

(*a*) A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

(*b*) A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the

* In all cases where the regulations require a bell to be used, a drum will be substituted on board Turkish vessels.

Speed of Ships to be moderate in [illegible]

Art. 13. Every ship, whether a sailing ship or steam-ship, shall in a fog, mist, or falling snow, go at a moderate speed.

Steering and Sailing Rules.

Art. 14. When two sailing ships are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, viz.—

(*a*) A ship which is running free shall keep out of the way of a ship which is close-hauled.

(*b*) A ship which is close-hauled on the port tack shall keep out of the way of a ship which is close-hauled on the starboard tack.

(*c*) When both are running free with the wind on different sides, the ship which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free with the wind on the same side, the ship which is to windward shall keep out of the way of the ship which is to leeward.

(*e*) A ship which has the wind aft shall keep out of the way of the other ship.

Art. 15. If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This Article only applies to cases where ships are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two ships which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are, when each of the two ships is end on, or nearly end on, to the other; in other words, in cases in which, by day, each ship sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each ship is in such a position as to see both the side-lights of the other.

It does not apply, by day, to cases in which a ship sees another ahead crossing her own course; or by night, to cases where the red light of one ship is opposed to the red light of the other, or where the green light of one ship is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

Art. 16. If two ships under steam are crossing, so as to involve risk of collision, the ship which has the other on her own starboard side shall keep out of the way of the other.

Art. 17. If two ships, one of which is a sailing ship, and the other a steam-ship, are proceeding in such directions as to involve risk of collision, the steam-ship shall keep out of the way of the sailing ship.

Art. 18. Every steam-ship, when approaching another ship, so as to involve risk of collision, shall slacken her speed or stop and reverse, if necessary.

Art. 19. In taking any course authorised or required by these Regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.—

One short blast to mean "I am directing my course to starboard:"

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

Art. 20. Notwithstanding anything contained in any preceding Article, every ship, whether a sailing ship or a steam-ship, overtaking any other shall keep out of the way of the overtaken ship.

Art. 21. In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such ship.

Art. 22. Where by the above rules one of two ships is to keep out of the way, the other shall keep her course.

Art. 23. In obeying and construing these rules due regard shall be had to all dangers of navigation; and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

No Ship, under any circumstances, to neglect proper Precautions.

Art. 24. Nothing in these rules shall exonerate any ship, or the owner, or master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

Reservation of Rules for Harbours and Inland Navigation.

Art. 25. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbour, river, or inland navigation.

Special Lights for Squadrons and Convoys.

Art. 26. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war or for ships sailing under convoy.

Art. 27. When a ship is in distress, and requires assistance from other ships or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, that is to say—

In the day-time—

1. A gun fired at intervals of about a minute.
2. The International Code signal of distress indicated by N C.
3. The distant signal, consisting of a square flag, having either above or below it a ball or anything resembling a ball.

At night—

1. A gun fired at intervals of about a minute.
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.).
3. Rockets or shells, throwing stars of any colour or description, fired one at a time, at short intervals.

ORDERS IN COUNCIL OF 30TH DECEMBER 1884 AND 24TH JUNE 1885.

ALTERNATIVE LIGHTS FOR TRAWLERS WHEN ENGAGED IN TRAWLING, HAVING THEIR TRAWLS IN THE WATER AND NOT BEING STATIONARY.

1884.—PART I.—STEAM-VESSELS OF 20 TONS GROSS REGISTER TONNAGE OR UPWARDS.

(1.) On or in front of the foremast head and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side, such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet nor more than 12 feet.

1884.—PART II.—SAILING VESSELS OF 20 TONS NET REGISTER TONNAGE OR UPWARDS.

(1.) On or in front of the foremast head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft

the beam on the port side: and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet.

1885.—Sailing Trawlers of any Tonnage.

As regards sailing vessels engaged in trawling, such vessels having their trawls in the water and not being stationary in consequence of their gear getting fast to a rock or other obstruction, if they do not carry and show the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in Part 2 of the Schedule to the said recited Order in Council of the 30th of December, 1884, shall carry and show in lieu of the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in paragraph 2 of the Schedule to the said recited Order, other lights as follows, that is to say:

A white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, and visible on a dark night with a clear atmosphere for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by another ship or vessel in sufficient time to prevent collision.

Aids to Memory in four verses, by Thomas Gray.

1. *Two Steam-ships meeting.*

When both side-lights you see ahead—
Port your helm and show your RED.

2. *Two Steam-ships passing.*

GREEN TO GREEN——or, RED TO RED——
Perfect safety——Go ahead!

3. *Two Steam-ships crossing.*

Note.—This is the position of greatest danger: there is nothing for it but good look-out, caution, and judgment.

If to your starboard RED appear,
It is your duty to keep clear;
To act as judgment says is proper:—
To port—or starboard—Back,—or, Stop her!

But when upon your Port is seen
A Steamer's Starboard Light of GREEN,
There's not so much for you to do,
For GREEN to Port keeps clear of you.

4. *All Ships must keep a good look-out, and Steam-ships must stop and go astern, if necessary.*

Both in safety and in doubt
Always keep a good look-out;
In danger, with no room to turn,
Ease her, stop her, go astern.

14th October 1867.

APPENDIX E.

Distress and Pilot Signals.

The following sections, together with the schedules referred to therein, of the "Merchant Shipping Acts Amendment Act, 1873," relate to Signals of Distress and signals for Pilots. (*See also* "*Regulations for preventing Collisions at sea.*" *Article* 27.)

M. S. Act, 1873.

18. The signals specified in the first schedule to this Act shall be deemed to be signals of distress.

Signals of distress.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals, except in the case of a vessel being in distress, shall be liable to pay compensation for any labour undertaken, risk incurred, or loss sustained in consequence of such signal having been supposed to be a signal of distress, and such compensation may, without prejudice to any other remedy, be recovered in the same manner in which salvage is recoverable.

Signals for pilots.

19. If a vessel requires the services of a pilot, the signals to be used and displayed shall be those specified in the second schedule to this Act.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals for any other purpose than that of summoning a pilot, or uses or causes or permits any person under his authority to use any other signal for a pilot, shall incur a penalty not exceeding twenty pounds.

Power to alter rules as to signals.

20. Her Majesty may from time to time by Order in Council repeal or alter the rules as to signals contained in the schedules to this Act, or make new rules in addition thereto, or in substitution therefor, and any alterations in or additions to such rules made in manner aforesaid shall be of the same force as the rules in the said schedules.

SCHEDULES.

SCHEDULE I.

Signals of Distress.

In the day-time.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress in the day-time:—

1. A gun fired at intervals of about a minute;
2. The International Code signal of distress indicated by N C;
3. The distant signal, consisting of a square flag having either above or below it a ball, or anything resembling a ball.

At night.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress at night:

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, of any colour or description, fired one at a time, at short intervals.

SCHEDULE II.

Signals to be made by Ships wanting a Pilot.

In the day-time.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot in the day-time, viz.—

1. To be hoisted at the fore, the Jack or other national colour usually worn by merchant ships, having round it a white border, one-fifth of the breadth of the flag; or
2. The International Code pilotage signal indicated by P T.

At night.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot at night, viz.—

1. The pyrotechnic light, commonly known as a blue light, every fifteen minutes; or
2. A bright white light, flashed or shown at short or frequent intervals, just above the bulwarks, for about a minute at a time.

APPENDIX F.

Examination in Chart.

For all Grades where the Chart is used.

[The candidate will be required to work out the following questions on either a "true" or "magnetic" chart* whichever may be handed to him by the Examiner; and also determine whether the chart is a "true" or "magnetic" one, and whether it is for the northern or southern, and eastern or western hemisphere.]

* The terms "true" and "magnetic" are used for the sake of brevity and convenience, for indicating charts that have compasses delineated upon them showing the "true" or "magnetic" point of the compass respectively.

1. Using deviation [card] [curve*] No. , find the course to steer by compass from to ; also the distance.

Answer.—Compass course °

Distance °

Variation °

Deviation ° °

2. With the ship's head on the above-named compass course a [point] [light-house] bore by compass and bore by the same compass, find the ship's position.

Answer.—Latitude °

Longitude °

3. With the ship's head as above, a [point] [light-house] bore by compass , and after continuing on the same course miles it bore , find the position of ship and her distance from at the time of taking the second bearing.

Answer.—Latitude °

Longitude °

Distance °

All the foregoing questions must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature °

Date °

Chart used °

Additional for Masters.

4. Find the course to steer by compass from to (*see* Question 1) to counteract the effect of a current which set at the rate of miles per hour, the ship making by log miles per hour; also the distance the ship would then make good in hours towards

Answer.—Compass course °

Distance °

5. On being off took a cast of the lead; required the correction to be applied to the depth obtained by the lead line before comparing it with the depth marked on the chart.

6. What do you understand the small numbers to indicate that you see placed about the chart, and at what time of tide?

7. What do the Roman numerals indicate that are occasionally seen near the coasts and in harbours?

8. How would you find, approximately, the time of high water at any place, the Admiralty tables not being at hand, nor any other special tables available?

All the foregoing questions, and those on Form Exn. 9C., must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature

Date

* A Candidate for a Master's Certificate is expected to use either a card of deviations or a curve of deviations on a Napier's diagram, whichever the Examiner may think proper to put before him.

APPENDIX G.

DEVIATION OF THE COMPASS.

N. B.—***The Examiner will not mark less than 12 of the following questions, which must be correctly answered by the candidate, and the Examiner's attention is specially called to the importance of Questions 7, 8, 9, 10, and 19, which should be marked in all cases.***

1. What do you mean by Deviation of the Compass?
2. How do you determine the deviation (*a*) when in port, and (*b*) when at sea?
3. Having determined the deviation with the ship's head on the various points of the Compass, how do you know when it is easterly and when westerly?
4. Why is it necessary, in order to ascertain the deviations, to bring the ship's head in more than one direction?
5. For accuracy, what is the least number of points to which the ship's head should be brought?
6. How would you find the deviation when sailing along a well-known coast?
7. In the following table give the correct magnetic bearing of the distant object, and thence the deviation:—

Ship's head by Standard Compass.	Bearing of distant object by Standard Compass.	Deviation required.	Ship's head by Standard Compass.	Bearing of distant object by Standard Compass.	Deviation required.
North			South		
N.-E.			S.-W.		
East			West		
S.-E.			N.-W.		

8. With the deviation as above, give the courses you would steer by the Standard Compass to make the following courses, correct magnetic [ ].
9. Supposing you have steered the following courses by the Standard Compass, find the correct magnetic courses made from the above deviation table [ ].
10. You have taken the following bearings of two distant objects by your Standard Compass as above; with the ship's head at , find the bearings, correct magnetic [ ].
11. Name some suitable objects by which you could readily obtain the deviation of the Compass when sailing along the coasts of the English Channel.
12. Do you expect the deviation to change; if so, state under what circumstances?
13. How often is it advisable to test the accuracy of your table of deviations?
14. State briefly what you have chiefly to guard against in selecting a position for the Compass.
15. The Compasses of iron ships are more or less affected by what is termed the heeling error; on what courses does this error vanish, and on what courses is it the greatest?
16. State to which side of the ship, in the majority of cases, is the North point of the Compass drawn in the Northern Hemisphere; and what effect has it on the assumed position of the ship when she is steering on Northerly, and also on Southerly courses?
17. The effect being as you state, on what courses would you keep away, and on what courses would you keep closer to the wind, in order to make good a given Compass course?
18. Does the same rule hold good in both hemispheres with regard to the heeling error?
19. Your Steering Compass having a large error, how would you proceed to correct that Compass by compensating magnets and soft iron, in order to reduce the error within manageable limits?

APPENDIX H.

SYLLABUS OF EXAMINATION in the LAWS of the DEVIATION of the COMPASSES of an IRON SHIP, and in the Means of compensating or correcting it.

Candidates for the voluntary examination in Compass Deviation, and also for Extra Masters' Certificates, will be examined in the whole of this syllabus, and will be required to answer all

the questions correctly, and to the entire satisfaction of the Examiner.

1. Describe an artificial magnet, and how a steel bar or needle is usually magnetized.

2. [*For the sake of simplicity it is desirable to adopt the nomenclature of the Astronomer Royal, and call that pole of the compass needle that points to the magnetic north the red, and the other the blue pole.*] What effect has the pole of one magnet of either name on the pole of the same name of another magnet, and what would be the consequence of the pole of one magnet of either name being brought near enough to affect the pole of contrary name, if in these cases both magnets were freely suspended?

3. By applying this law to all magnets, natural as well as artificial, show what would be the result on a magnetic bar or needle, freely suspended, but by weight or by the nature of its mounting constrained to preserve a horizontal position; and what result, if so mounted, but free to move in every direction, the earth being regarded as a natural magnet?

4. Which is the red magnetic pole of the earth, and which the blue?

5. What is the cause of the variation of the compass?

6. What is meant by the deviation of the compass?

7. Describe the sub-permanent magnetism of an iron ship, and state when and how it is acquired, and which is the sub-permanent red, and which is the blue pole, and why it is called sub-permanent magnetism.

8. What is meant by "the composition of forces" and "the parallelogram of forces," and show how the knowledge of these is valuable in ascertaining and compensating the sub-permanent magnetism of an iron ship?

9. Describe the co-efficients B and C, plus (+), and minus (—), and why they are said to produce semi-circular deviations.

10. On what points by compass bearing of the ship's head does + B give westerly deviation, and on what does it give easterly; and also on what point does — B give westerly, and on what points easterly?

11. On what points does + C give westerly, and on what points easterly; also on what points does — C give westerly, and on what points easterly deviation?

12. How would you compensate the co-efficient C?

13. How would you compensate the co-efficient B?

14. If the value either of co-efficient B or C be given, also the magnetic direction of the ship's head while she was being built, how by the traverse tables would you determine the approximate value of the other co-efficient C or B; and if the value of both these co-efficients be given, how would you determine approximately the direction, by compass, of the ship's head whilst being built?

15. What is meant by transient induced magnetism?

16. Under what circumstances does induced magnetism give semi-circular deviation?

17. How would you compensate — B resulting from induced magnetism, and why for this purpose would you adopt a different mode of compensation to that employed in correcting — B produced by sub-permanent magnetism?

18. Describe quadrantal deviation, and state what co-efficients represent it; also on what points of the ship's head, by compass, each of these co-efficients gives the greatest amount of deviation.

19. On what points of the compass will each of these co-efficients, D and E + and —, give easterly, and on what points westerly deviation?

20. Generally + D gives the greatest amount of *quadrantal* deviation: how should it be compensated?

21. If D be compensated in the manner you have described, will it remain so in every latitude? If so, state the reason why.

22. What conditions of the iron of a ship will produce + D and what — D?

23. Describe the nature of the deviation resulting from + A and —A, and describe the error in the construction of the compass that frequently produces them.

24. Under what circumstances does the character of A and E so change as to render it desirable that these co-efficients should be disregarded or modified?

25. The value of A, B, C, D, and E being given, or B, C, and D only, find the deviation on any required point of the compass, or construct a table of deviation, if required.

26. Describe how you would determine the deviation by means of a distant object, by reciprocal bearings, or by the figures on the dock walls.

27. If it be required to determine the deviation of two or more compasses, it is most convenient to bring the ship's head, correct magnetic, on as many points as may be necessary. To determine the co-efficients B, C, and D, the bearing of the ship's head by each compass is required. How would you for this purpose employ a Graphic Method?

28 State your rule for determining whether deviation is easterly or westerly.

29. Describe the use of the "dumb card," or an azimuth card without a needle, in compensating a compass.

30. If you determine the deviation by an azimuth or an amplitude of a heavenly body, it is then combined with variation,* which together is sometimes called the *correction* for the compass. State when the deviation is the difference between the variation and the *correction*, and when the sum; and when it is of the same name as that of the *correction*, and when of the contrary name.

31. In observing azimuths of heavenly bodies, the best method is by "time azimuths," since these can be observed without an altitude when the ship is in port, or the horizon cannot be defined from any cause. Given the sun's declination, the hour of the day, and the latitude to find the true bearing of the sun.†

32. By night, if it be desirable to observe the *correction* of the compass. Given the day of the year, and time at ship, also the latitude of the place to determine what† star will be in good position for this purpose.

33. If your correcting magnets are so mounted that their positions can be altered, describe the process by which, on open sea, you can place the ship's head correct magnetic N. (or S.), and correct magnetic E. (or W.), and can make the correction perfect.

34. Given the name of a star, the time, the place of ship, the variation of the compass, and the bearing of the star by compass. Determine the deviation, and name it east or west.

35. If an ordinary standard compass placed higher than the iron top sides be compensated whilst the ship is upright, what coefficient will be effected by heeling?

36. When generally will this co-efficient be plus, and when minus?

37. State the exceptions to this general rule.

38. Does the heeling error arise from the altered position of the sub-permanent poles of the ship, or from a change in the induced magnetism?

39. To what extent is the heeling error altered by a change in the magnetic latitude of the ship?

40. If a ship is beating to windward; when she tacks, under what circumstances will the heeling error retain the same name, and under what circumstances will it take the contrary name?

41. If a ship is placed on the opposite tack by the change of wind, the ship's course being the same by compass, will the heeling error change its name?

42. Under what circumstances will the heeling error, if disregarded, take the ship to windward, or when to leeward?

43. Can the heeling error be compensated? If so, state the means to be employed.

44. Can the compensation of the heeling error be depended on in every latitude? If not, state the reason.

45. Given the heel, the direction of the ship's head by compass, and the heeling error observed, to find the approximate heeling error, with a greater or less given heel, and with the ship's head on some other named point of the compass, the ship's magnetic latitude being in both cases the same.

46. Describe any instrument to show the ship's heel (generally called a clinometer), and state how and where it should be fixed.

47. Should the clinometer be observed when the ship is swung to determine the deviation when the ship is upright? If so, state the reason why.

APPENDIX I.

Particulars of Examination in Sumner's Method by Projection.

Candidates are required to compute their longitude by chronometer worked with two assumed latitudes.

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* The magnetic variation is best determined by a chart of the curves of equal magnetic variation.

† The process of finding time azimuths by the ordinary formulæ of spherical trigonometry is tedious, and since on board an iron ship these observations should be often repeated, the candidate will be allowed to use any table or graphic or linear method that will solve the problem within a half of a degree, the altitude of the heavenly body not being given.

They are to mark off on the chart the two positions ascertained by the first altitude, and are then to connect them with a straight line, termed the *line of position*, or the line of equal altitude, which will show the bearing of any land it may intersect.

They will then be required to correct the first *line of position* for the ship's change of station, in the interval between the two observations, to project the *line of position* corresponding to the second observation on the chart, showing by its intersection with the first *line of position*, as corrected for change of station, the position of the ship at the time of the second observation.

The longitudes corresponding to the two latitudes by the second observation are no longer furnished by the Examiners. The candidates are consequently required to work out the whole of the problem for themselves (in place of the explanation recently required), and must be prepared to find the sun's true bearing by projection at the time of taking either the first or second observation; and when necessary to produce the *lines of positions* on the chart in order to make them cut one another should the position of the ship happen to be outside the parallels of the two assumed latitudes given in the question. Outline charts, extending from 46° to 49° and from 49° to 52° of latitude, respectively, are furnished by the Board of Trade to the different examiners for this purpose.

APPENDIX K.

The Candidate must answer in writing, on paper supplied to him by the Examiner, the following questions, numbering the answer to correspond with the questions.

Question—

Questions relating to cyclones or revolving storms common in tropical seas.

1. The direction of the wind in a cyclone being*_____ state the probable bearing of its centre from the ship in the* _____ Hemisphere.
2. And suppose that the wind during the passage of the same cyclone were found to change towards the*_____ _____, what would be the ship's position with reference to the line of progression of the centre of the cyclone, and what action would you take?
3. Under what conditions would the change in the direction of the wind in the cyclone be the reverse of the above?
4. What are the usual indications of a ship being on the line of progression of the centre of a cyclone?
5. What are the usual indications that a ship is (*a*) approaching the centre of a cyclone; (*b*) receding from it?
6. Describe the track usually taken by cyclones in the †_____, and state the seasons of the year in which they most frequently occur in that region.

APPENDIX L.

Instructions to Examiners.

Examination in Colours.

Herewith are—

(*a*) A lanthorn having in it a lamp in which kerosine is to be burnt.

(*b*) A slide having ground glass in it.

(*c*) Nine slides, each having a coloured glass in it. The colours are as follows:—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1).
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

* These spaces to be filled in by the Examiners, and frequently varied.

† The Examiners to fill in whether North Atlantic, Bay of Bengal, China Seas, Indian Ocean, &c., &c.

(*d*) Cards, five of each as follow :—

1. White.
2. Black.
3. Red.
4. Pink.*
5. Green.
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (*Cards.*)

In conducting the examination by daylight, the examiner should do it in three ways—

1. The cards should be mixed up. The examiner should then hold up each card separately, and ask the candidate to name the colour, and if the candidate does so without hesitation, he is to be regarded as having passed the daylight test.
2. If the candidate hesitates in any of his answers, so as to raise a doubt in the mind of the examiner as to his ablity to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that, they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap.
4. The result of the examination should be noted and recorded in each case.

Examination by artificial Light.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn, and at least 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked if it appears to him to have any colour ; and if so, what colour ?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star * is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having " failed " if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c. ; or to name card No. 7 as red, green, or yellow ; or glass No. 2 as green, blue, or yellow ; or glass No. 5 as red, pink, salmon, &c. ; or glass No. 7 as bright red or bright green ; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B.

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black, by daylight ; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown), he may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.

APPENDIX M.

Instructions to Examiners.

Compass Adjustment.

It is of the utmost importance that masters of ships should thoroughly understand the tentative method of Compass Adjust-

ment as generally practised in merchant ships, and Examiners are therefore directed to fully satisfy themselves that all Candidates for Masters' Certificates have this particular knowledge. It should be tested in connexion with the Form of Examination, "Exn. 7," or it may be tested by Captain Beall's "Deviascope" at those ports which have been supplied with this instrument. Where the "Deviascope" is used it will not be necessary for the Candidates to give the written answers and sketches illustrative of the Question 19 of Form Examination 7.

A concise statement of the present method of tentative Compass Adjustment is forwarded for the use of Examiners. The Government wish them, however, distinctly to understand that the Government are not in any way advocating the correction of that part of co-efficient B which arises from vertical induction in soft iron by a permanent magnet instead of by a soft iron bar. The Government have no authority to interfere with the methods in use amongst Compass adjusters for the adjustment of Compasses in iron ships, but instruct the Examiners to satisfy themselves that masters are acquainted with the ordinary method as at present practised.

The examination by the "Deviascope" is at present only experimental, and no Candidate should be reported as having "failed" who does not pass the examination in it, provided he has answered satisfactorily the Question 19, "Exn. 7."

The "Deviascope" is sent only to three ports at present, and its extended use will depend upon experience at those ports.

The Tentative Method of Compass Adjustment as generally practised by Compass Adjusters in Ships of the Mercantile Marine.

Before describing the practice it will be as well to briefly state the co-efficients used to express the different magnetic forces:—

Co-efficient	A	represents	a constant quantity.
,,	B	,,	semi-circular deviation due to fore and aft magnetic forces.
,,	C	,,	semi-circular deviation due to transverse magnetic forces.
,,	D	,,	quadrantal deviation due to horizontal induction in soft iron.
,,	E	,,	quadrantal deviation due to horizontal induction in soft iron unsymmetrically distributed.

Signs and Effects of Co-efficients A, B, C, D, and E.

Co-efficient A represents a constant deviation of the same nature and amount, on all points of the compass; + A signifying easterly, and — A, westerly deviation.

Co-efficient + B represents an attraction towards the ship's head, and causes easterly deviations with ship's head in the eastern semi-circle of the Compass, and westerly deviations in the western semi-circle, attaining a maximum value on the east and west points, decreasing to zero on north and south points, by Compass.

Co-efficient — B represents an attraction towards the ship's stern, and causes easterly deviations with ship's head in the western semi-circle, and westerly deviations with the ship's head in the eastern semi-circle, with a maximum value on the east and west points, decreasing to zero on the north and south points, by Compass.

Co-efficient + C represents an attraction towards the starboard side of the ship, and causes easterly deviations with ship's head in the northern semi-circle, and westerly deviations in the southern semi-circle, attaining a maximum value on the north and south points, decreasing to zero on the east and west points, by Compass.

Co-efficient — C represents an attraction towards the port side of the ship, and causes westerly deviations with ship's head in the northern semi-circle, and easterly in the southern semi-circle, attaining a maximum value on the north and south points, decreasing to zero on the east and west points, by Compass.

Co-efficient + D gives easterly deviations with ship's head between N. and E. and S. and W., and westerly deviations between S. and E. and N. and W.

Co-efficient — D gives results exactly the reverse to + D.

Note.—Both + D and — D have a maximum value on the four quadrantal points, and become zero on the cardinal points by Compass.

Co-efficient + E gives easterly deviations with ship's head *between N.E. and N.W. and S.E. and S. W. and westerly deviations between N.E. and S.E. and N.W. and S.W.*

Co-efficient — E gives results exactly the reverse to + E.

Note.—Both + E and — E have a maximum value on the cardinal points, and become zero on the four quadrantal points, but are usually very small in amount in Compasses placed in the middle line of the ship.

Heeling Error.—The heeling error arises partly from vertical induction in transverse iron, and iron vertical to the ship's deck, and partly from the vertical component of the sub-permanent magnetism of the ship. In the Northern Hemisphere in the majority of cases the N. point of the Compass needle is drawn to windard or the high side of the ship, with, as a rule, a maximum heeling error on N. and S. points, and zero on E. and W. points by Compass. If the Compass is not properly placed in the ship, there may be a sensible heeling deviation on E. and W. courses.

Tentative Corrections.

To correct co-efficient C.—With ship's head north or south, magnetic, place a bar magnet (or more than one if necessary) horizontally and exactly athwart ship, either on the deck or on any convenient platform, with its centre on the fore and aft line passing through the centre of the Compass card, placing its red or marked end to starboard if the N. point of the needle deviates to the starboard side, or to port if it deviates to the port side of the ship, moving the magnet to or from the Compass until it points correctly.

Note.—The deviation represented by co-efficient C varies inversely as the earth's horizontal force, providing the iron is symmetrically arranged on each side of the Compass.

To correct co-efficient B.—With ship's head east or west, magnetic, place a bar magnet (or more than one if necessary) horizontally and exactly parallel to the fore and aft midship line of the ship, either on the deck or on any convenient platform, with its centre on the athwart ship line passing through the centre of the Compass, the red or marked end of the magnet being directed aft if the end point of the Compass needle deviates towards the stern, or forward if it deviates towards the bow, moving the magnet to or from the Compass until it points correctly.

Note.—The co-efficient B consists of two parts: one is due to the permanent magnetism of the ship, which varies inversely as the earth's horizontal force; the other to vertical induction in soft iron, which varies as the tangent of the dip. As ships in the merchant service are rarely built with a view of providing a satisfactory position for the standard Compasses, it is very difficult in many ships to find a position for it where it will not be affected by vertical iron. It follows, therefore, that if this deviation be compensated, as is customary, by a fore and aft permanent magnet instead of by a vertical soft iron bar, the poles of the magnet may in some cases require to be reversed in high southern latitudes.

To correct co-efficient + D.—With ship's head on one of the quadrantal points, magnetic, the + D is generally corrected by boxes of small chain, cylinders of soft iron, or soft iron globes placed athwart ships on the same level, and at equal distances, on the port and starboard sides of the Compass, with the centre of their mass on a level with the Compass needle, move them to or from the Compass till the needle points correctly.

To correct co-efficient—D.—Co-efficient—D, which is of very rare occurrence, is corrected by placing the above correctors on the fore and aft sides of the compass.

Note.—When once the co-efficient D is properly corrected by soft iron it is correct for all magnetic latitudes, provided the distribution of the iron in the ship is not materially changed, and provided the magnetism of the soft iron has not been affected by the Compass needles. With short needles having small magnetic power, such for instance as Sir Wm. Thomson's, there will probably be no change; but when the needles are long and powerful, one-half the original D may be expected to return when approaching the magnetic equator. *See* Admiralty Manual, 1882, page 96, as follows:—"When "a compass with long and powerful needless is employed, "soft iron correctors placed very near it become mag- "netized by induction according to the power of the

" needles, and the resulting correction will not remain " strictly perfect in all latitudes."

To correct Heeling Error.—The heeling error is corrected for any given magnetic latitude by placing a vertical magnet exactly under the centre of the Compass card, with its N. or red pole uppermost if the heeling error is to windward or to the high side of ship, or its S. or blue end uppermost if to leeward or to the low side of ship, moving the magnet to or from the Compass until the heeling error is corrected.

Note.—The heeling error, due to the permanent par of the magnetism, varies inversely as the earth's horizontal force, and consequently is greatest in high latitudes, diminishes as the ship approaches the magnetic equator, and increases again, still retaining the same name, as the ship recedes from the magnetic equator in the Southern Hemisphere. The heeling error, due to transverse and vertical soft iron, decreases as the ship approaches the magnetic equator, where it is zero, and is of a contrary name in the Southern Hemisphere. It is probable that the poles of the vertical magnet may require to be reversed in high southern latitudes.

A divided scale should be marked or fitted outside the tube or some other convenient place, so as to show the proper position for the correcting magnet as found in any given magnetic latitude, and the same recorded as a guide for approximately placing the magnet in position on any subsequent voyage in the same locality, and especially on the return of the ship to the United Kingdom.

Candidates should understand that the object of tentative adjustment is to bring the deviations within manageable limits, and also to equalise the directive force of the needle so far as is practicable on all courses ; but no system of adjustment whatever is sufficiently reliable in character to absolve the navigator from the necessity of using every precaution, and especially of ascertaining the deviation on every available opportunity by observations of the sun by day and the other heavenly bodies by night.

APPENDIX N.

(From Memorandum on Examination of Engineers.)

EXAMINATION OF A MASTER OR MATE IN STEAM

The regulations under which these examinations are conducted are printed at pages 41 to 43 of the regulations for examinations of masters and mates. (Exn. 1.)

A candidate for this examination is required to have a thorough grasp of the construction of the steam engine and boiler, to enable him, in the first place, to understand the nature and importance of any defect which may be reported to him by the engineer, and so that he may work in harmony with the engineer in affording time and facilities for disconnexions, inspections, adjustments, and repairs.

To have a looking-on knowledge of what the principal repairs are about engines and boilers and pipes, and how these repairs are accomplished.

To be able to form an independent opinion as to a breakdown and the consequent propriety or impropriety of proceeding under steam with temporarily repaired or defective machinery.

To understand how to estimate approximately the reduction of fuel required for reduced speed, and consequently to sanction such reduction of speed as may seem to him to be warranted by the report of the engineer, and to satisfy himself before leaving port that there is sufficient coal for the voyage.

To have an intelligent grasp of the general run of pipes and connexions in the engine room, the marking of cocks, the opening and closing of cocks and valves, how mistakes of importance may be made in the confusion of an accident, and how best to guard against such mistakes.

To be capable of being left in charge of the feeding of a set of boilers, to understand the working of the water-gauge, and to be able to guard against being misled by false indications of the gauge glass.

To understand about blowing down and surfacing, the reasons for doing so, and the danger which may result from the neglect of these under certain circumstances. A master or mate presenting himself for examination in steam must be understood to have made up for his want of practical experience by reading up

about the steam engine. He ought, therefore, to show that he has given his mind to intelligently understanding the *rationale* of the action of the steam engine. Under this head, he should, therefore, be able to state approximately the quantity of heat required in the formation of steam, the remarkable relation of "latent" heat to "sensible" heat, using these popular names, how much steam can be raised by the combustion of one pound of coal, what horse-power measure is, what indicated horse-power is, the action of the slide-valve, the course of the steam through the engine, the advantage of working expansively, and how the expansive action is shown by the indicator diagram.

The candidate has to answer in writing 16 out of 20 questions selected from the book of Elementary Questions * Selections for this examination are given on the alphabetic sheet for "Steam." Generally, these answers are given by candidates as learned by rote from a book; the candidate should therefore be asked such *vivâ voce* questions as will necessitate his giving his answers in different words, so as to discover whether he has the root of the matter in him.

The principal part of the *vivâ voce* is the examination on board a steamer, preferably one with which he is unacquainted. He is told to look about and try to find out the run of the machinery without the assistance of any one; the Examiner to be in the engine-room to see that this independent examination is properly carried out. When the candidate reports that he thinks he knows the whole arrangement of the machinery, the Examiner will then question him on the uses of the parts,get him to point out the different cylinders, pumps, valves, condenser, &c. He must show that he understands the run of the pipes in the bilges, not necessarily that he has gone over every one of them, but he ought to be directed to trace, at least, one important range of pipes, and to thoroughly satisfy the Examiner that he could be safely trusted to manipulate the valves or cocks in connexion therewith. It will not often be practicable for the candidate to be asked to actually work engines under steam, but he must satisfy the Examiner that he knows how to do so, and that he is aware what precautions have to be taken in regard to water in the cylinder, &c. It is most important that a candidate should show that, in the event of an accident depriving him of the assistance of engineers, he knows what to do to safely take his vessel to an anchorage, or to stop the engines and proceed under sail alone.

The examination of a mate in steam is the same as that of a master. The knowledge is not with reference to the mate's position. A mate may be examined, but such examination implies that the mate will one day be a master, when the possession of the knowledge will be an advantage to him in the discharge of his duties as master.

APPENDIX O.

The following is a reprint of

INSTRUCTIONS

TO

EXAMINERS OF MASTERS AND MATES.

1. The Examiners already understand that they are to be very careful (in examining all applicants for Certificates of Competency) to satisfy themselves that the applicants understand the Rule of the Road at Sea, and should decline to pass every applicant who does not understand it.

2. As a serious misapprehension has, however, arisen in a recent case in which Sound Signals were being made by a steamer under way in thick weather, contrary to the express wording of Articles 12*a* and 19 of the Regulations, it is more than ever incumbent on Examiners not to pass any applicant unless the Examiner is satisfied that the applicant understands that the Signals named in Article 19 are purely optional, and are only allowed to be made in cases in which the weather is so clear that the ship making them has the other vessel in sight.

3. Any Master using these *optional* Sound Signals, even when the other vessel is in sight, does so in every case on his own

* Printed at end of Engineers' Regulations, Exn. 1*a*.

responsibility ; but if he uses them when the other vessel is *not* in sight, he commits a very serious act of disobedience to the Regulations, and must abide the consequences of his illegal act.

4. Applicants must be made to understand that the compulsory Sound Signal which *must* be made by a steamer under way in a fog is a prolonged blast under Article 12*a*, and no other Sound Signal.

5. In examining an applicant on the application of Articles 12 and 13, the Examiner should, by answers to questions, ascertain that the applicant understands that it is his duty to go at a moderate speed in fog, while, as regards Article 24, the Examiner should impress on the applicant that an "ordinary precaution" to be observed in the navigation of a steam-ship in a fog is to get the way off his own vessel immediately he hears the Sound Signal of another steamer, and then he should go ahead very slowly, blowing the "prolonged blast" at intervals, and feeling his way until all danger of collision is passed.

APPENDIX P.

FORMS used in connection with the EXAMINATION and CERTIFICATES of MASTERS AND MATES.

Name of Form.	Initial Letters and Numbers.
Regulations relating to the Examinations of Masters and Mates.	Exn. 1
Masters' and Mates' Form of Application for Examination.	Exn. 2
Form of Application for Examination (Colours) ...	Exn 2*a*
Examination Paper, to be used in the examination of Second Mates.	Exn. 4
Ditto, to be used by all candidates when appearing for examination for the first time only.	Exn. 4*a*.
Ditto, Second Mates	Exn. 5
Ditto, Only and First Mates	Exn. 6
Ditto, ditto ditto	Exn. 6*a*
Ditto, Masters, Ordinary	Exn. 7
Ditto, for adjustments of the Sextant	Exn. 9*a*
Ditto, Examination in Chart (for Mates)...	Exn. 9*c*.
Ditto, (for Masters)	Exn. 9*d*.
Examiners' Report of Masters' and Mates' Examination	Exn. 14
Examiners' Authority for delivery of Certificate to successful candidate.	Exn. 16
Examiners' Certificate (Colours)	Exn. 16*d*
Ditto authority for return of Fee to unsuccessful candidate (Colours).	Exn. 17*a*
Ditto Report on Colours tests	Exn. 17*b*.
Application for renewed Certificate	Exn. 23
Deviation cards	Exn. 24
Napier's Diagram	Exn. 25
Examination papor on Cyclones on revolving storms ...	Exn. 32

Government of Bengal.

BENGAL.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, issued under section 8 of the Merchant Shipping (Colonial) Act, 1869.

Colonial Certificate of Competency

AS

MASTER.

T

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of MASTER in the Merchant Service, I do hereby, in pursuance of Act I of 1859, grant you this Certificate of Competency.*

By order of the Government of Bengal,

*this*_____*day of*_____18____.

Under-Secy. to the Govt. of Bengal.

Registered at the Office of the Port Officer of Calcutta.

BENGAL.

No. of Certificate 

Address of Owner _____

Date and Place of Birth _____

Signature _____

This Certificate is given upon an ORDINARY EXAMINATION passed at _____ *on the* _____ *day of* _____ 18—.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the _____ *day of* _____ 18—.

_____

_____

Government of Bengal.

BENGAL.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act,* 1869.

Colonial Certificate of Competency

AS

FIRST MATE.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of FIRST MATE in the Merchant Service, I do hereby, in pursuance of Act I of* 1859, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

this _____ *day of* _____ 18__.

Under-Secy. to the Govt. of Bengal,

Registered at the Office of the Port Officer of Calcutta.

BENGAL.

No. of Certificate [redacted]

Address of Owner _____

Date and Place of Birth _____

Signature _____

This Certificate is given upon an ORDINARY EXAMINATION passed at _____ *on the* _____ *day of* _____ 18—.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. *This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act* 25 *and* 26 *Vic., cap.* 63, *sec.* 23, *to cancel or suspend Certificates.*

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the _____ *day of* _____ 18—.

BENGAL.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act*, 1869.

Colonial Certificate of Competency

AS

ONLY MATE.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of ONLY MATE in the Merchant Service, I do hereby, in persuance of Act I of* 1859, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

*this*_____*day of*_____18__.

Under-Secy. to the Govt. of Bengal.

Registered at the Offic of the Port Officer of Calcutta.

(93)

BENGAL.

No. of Certificate 

Address of Owner———————————————————

Date and Place of Birth———————————————————

Signature———————————————

This Certificate is given upon an ORDINARY EXAMINATION passed at———————*on the*———————
day of———————18——.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the———————*day of*———————18——.

———————————————————

———————————————————

(18)

BENGAL.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act*, 1869.

Colonial Certificate of Competency

AS

SECOND MATE.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of SECOND MATE in the Merchant Service, I do hereby, in persuance of Act I of* 1859, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

this _____ *day of* _____ 18—.

Under-Secy. to the Govt. of Bengal.

Registered at the Office of the Port Officer of Calcutta.

BENGAL.

No. of Certificate [redacted]

*Name and address of owner*_____

*Date and Place of Birth*_____

*Signature*_____

*This Certificate is given upon an ORDINARY EXAMINATION passed at*_____ *on the*_____ *day of*_____ 18 .

Any MASTER or MATE who fails to deliver up a certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. *This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act* 25 *and* 26 *Vic., cap.* 63, *sec.* 23, *to cancel or suspend Certificates.*

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

*Issued at the Port of Calcutta on the*_____ *day of*_____ 18 .

_____

_____

No. 26 Marine, dated Calcutta, the 31st January 1890.

NOTIFICATION—By the Govt. of Bengal, P. W. Dept.

UNDER the powers conferred upon him by section 10 of Act I of 1859, and with the sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules for the examination of persons desirous of obtaining local certificates of competency as Masters and Mates in the Mercantile Marine. These rules supersede those contained in the Notification of the General (Marine) Department of this Government, dated the 28th August 1877, and published in the *Calcutta Gazette* of the 29th idem.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed, and arrangements have been made for holding the examinations periodically at the Port of Calcutta. The examinations will be held twice a quarter or at such other times as the Government may appoint.

Examinations continued till all the Candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Notice of application for examination to be given to the Port Officer.

3. Candidates for examination must make their application upon the appropriate Form (Exn. 2), which must be filled up at the Port Office. The Exn. 2, properly filled in, together with the Candidate's testimonials and discharges, must be lodged with the Port Officer of Calcutta, not later than the day before the day of examination, and the Candidate must conform to any regulations in this respect which may be laid down by the Government; as, if this be not done, delay may be occasioned.

Testimonials of character, conduct and ability required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges have to be verified before the Candidate can be examined, it is desirable that they should be handed in together with the Form Exn. 2 as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners and of British seamen serving in foreign vessels, which cannot be verified by the Port Officer, must be confirmed either by the Consul of the country to which the ship in which the Candidate served belonged, or by some other recognized official authority of that country, or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case will be decided on its own merits, and if the sufficiency of the proofs given appears to be at all doubtful, it must be referred to the Government.

Certificates as to Age.

6. Should any doubt exist as to the age of a Candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel. In the case of natives of India, who may not be able to speak English, their Certificates shall be endorsed to the effect that they are only valid for vessels manned and officered entirely by Asiatics.

Verification of Services by the Port Officer.

8. The time for which length of service as Seaman or Officer in the Mercantile Marine is to be reckoned in all cases referred to in the following paragraphs is to commence at the date when the articles of agreement were signed by the applicant, and to end at the date when he was discharged as shown in the articles of agreement. The certificates of discharge will generally be sufficient evidence of this, but great care must be exercised by the Port Officer and Examiners to detect any tampering in any way with the information contained in them, and to report to the Government at once any suspicious cases.

9. Services which cannot be verified by proper Entries in the Articles of the Ships in which the Candidates have served cannot be counted. For instance, a man will state his service to have been as Second or Only Mate, and to support his assertion will produce a Certificate of Discharge or of Employment by the Master to the effect that he served as Mate, when, on reference to the articles, it appears that he has actually been rated as Boatswain: the service in such a case will not be regarded as having been in the capacity of Mate.

Service as an Apprentice.

10. Time for which Indentures of Apprenticeship are in force will be accepted as sea service, provided that the Apprentice has remained by the ship for at least four-fifths of the time covered by the Indentures, and that the Indentures of the applicant are endorsed by the Owner or Master to whom he has been bound to the effect that he has performed his service faithfully for the whole time agreed upon.

Service as 2nd, 3rd or 4th Mate to qualify for Master.

12. Service as Second, Third, or Fourth Mate may be accepted as equivalent to service as First or Only Mate to qualify a Candidate for examination for a Master's Certificate of Competency, provided he can produce satisfactory evidence of his having served at sea 12 months as Second, Third, or Fourth Mate of a Foreign-going Ship while in possession of a First Mate's Certificate of Competency, valid in the United Kingdom. It will be noted that occasional service in charge of a watch in the daytime will not be accepted as Mate's service under the Regulations.

Service on board a Training Ship.

13. Part of the time served on board a training ship will be allowed to count as service at sea, provided that the Candidate can produce amongst his testimonials a Certificate from the Committee that he has conducted himself creditably, and passed a good examination in seamanship so far as practised in the training ship as well as in other matters down to the time of his leaving the ship.

14. No period of service on board a training ship will be allowed to count for more than one year's sea service.

Service in capacities other than as Apprentices or Seaman.

15. Candidates whose services have been in capacities other than Apprentice, Ordinary Seaman, or Able Seaman, *e.g.*, Cook, Steward, Carpenter, &c., will be required to satisfy the Port Officer that they have a good knowledge of Seamanship. This may possibly be proved by the production of satisfactory Certificates from Masters with whom the applicants have served. Failing satisfactory evidence, the applicant may be required to perform additional service, which must be in the capacity of Ordinary Seaman or Able Seaman.

Service on rivers and in smooth water

16. Service performed on rivers, no matter of what size, or in smooth water or partially smooth water limits, cannot be accepted.

Partial loss of sight.

17. A person who has lost the sight of one eye cannot be permitted to be examined for a Certificate of Competency. If he already holds a Certificate, he cannot be examined for a Certificate of a higher grade.

Service in Light-ships and Engine-room.

18. Service in Light-ships or in an Engine-room will not be accepted as sea service for a Master's or Mate's Certificate of Competency.

Service as Hooghly Master Pilot.

19. Service as a First Class Pilot will be accepted as qualifying for examination for a Master's Certificate for Home Trade Ships, notwithstanding that he may not have served in the capacity of Mate, but only provided that his *Sea Services* are sufficient. For the purpose of this rule, a Hooghly Master Pilot will be held to be a First Class Pilot.

Service as Pilot's Apprentice.

20. Half the amount of service performed as an Apprentice in a Pilot Ship propelled by sails may count as actual Sea Service to qualify for examination for a Certificate of Competency.

Service in Tug Boats.

21. Service performed in Tug Boats employed in Sandheads Service or outside Port limits may be accepted as Sea Service for qualifying for a Mate's Certificate for Home Trade Ships. Service on Hooghly River survey vessels may be accepted on the same conditions. Service in the Hooghly Pilot vessels at the Sandheads is Sea Service.

Desertion and gross misconduct.

22. Candidates who have neglected to join their vessels after having signed Articles, or who have deserted their vessels after having joined, or who have been found guilty

of gross misconduct on board, will be required to produce satisfactory proofs of two years' subsequent service and good conduct at sea, unless the Government, after having investigated the matter, should see fit to reduce the time.

If after passing examination services are found to have been insufficient.

23. If after a Candidate has passed his Examination it is discovered on further investigation, *e.g.*, by verification *on the part of the Port Officer, that his services are insufficient to entitle him to receive a Certificate of the grade for* which he has passed, it will not be granted to him; but if the Government are satisfied that the error in the calculation of his services did not occur through any fault or wilful misrepresentation on his part, he will be allowed to go up for re-examination without payment of a further fee when he has performed the amount of service in which he was deficient.

Certificate of a lower grade may be granted on certain conditions.

24. If in such a case the applicant's services are sufficient to entitle him to receive a Certificate of a lower grade, provided as aforesaid he has not wilfully misrepresented the amount of his services, an Inferior Certificate may be granted to him, and the difference, if any, between the fee paid by him for the Superior Certificate and the fee payable for the Inferior Certificate, may be placed to his credit.

Must be re-examined for certificate of higher grade.

25. In such a case, when the applicant has by further service made up the amount in which he was found to be short, he must, before he can receive the higher Certificate, be re-examined in all the subjects.

Colour Tests.

26. The Local Government have made the following arrangements for the examination of persons as to their ability to distinguish colours :—*

27. Examinations in Colour are open to any person serving or about to serve in the Mercantile Marine.

28. Any person, including the holders of Certificates of Competency, or persons about to apply for Certificates of Competency, if desirous of being examined *in Colours only*, must make application to the Port Officer on Form Exn. 2ᵃ, and pay a fee of one rupee.

29. He must on the appointed day attend for examination at the Examiner's Office; and if he passes he will receive a certificate to that effect.

30. If he fails it will be open to him to be examined again in Colours as often as he pleases on payment of the fee of one rupee at each fresh attempt.

31. The application of a *Candidate who is presenting himself for Examination for a Master's or Mate's Certificate* must be made on Form Exn. 2. Such examination will commence with the Colour test; and if the Candidate does not, at the time of making application, hold a Certificate of Competency of any grade, and should fail to distinguish correctly any of the colours used in the test, he will not be allowed to proceed with the examination in Navigation and Seamanship.

32. The fee he has paid for Examination for a Certificate of Competency will include the fee for the Colour test, and, with the exception of one rupee, will in such event be returned to him.

33. A Candidate for Examination for a Certificate of Competency who, at the time of making application, does not possess a Certificate, and who fails to pass the Colour test, may not be re-examined until after the lapse of three months from the date of his first failure. If he fails a second time, he will be allowed a third trial at the expiration of another three months from the date of his second failure. A fresh fee must be paid at each succeeding examination.

34. It is therefore obviously to the advantage of Candidates for Certificates of Competency to apply in the first instance to be examined in *Colours only* on Form Exn. 2ᵃ.

35. A Candidate who holds a Certificate of Competency, and who, on presenting himself for Examination for a Certificate of a higher grade, is unable to pass the Colour test, will notwithstanding be permitted to proceed with the Examination in Navigation and Seamanship for the Certificate of the higher grade.

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* *See* Appendix O.

36. Should he pass this examination, the following statement will be written on the face of the higher Certificate which may be granted to him, viz.—"This Officer has failed to pass the Examination in Colours."

37. Should he ultimately fail to pass the Examination in Navigation and Seamanship, a like statement, relating to his being Colour blind, will be made by the Port Officer on his existing Certificate before it is returned to him.

38. Holders of Certificates which bear the statement of their having failed to pass in Colours, and who may desire to have the statement removed from their Certificates, must obtain the special permission of the Government.

Qualifications for Certificates of Competency for Home Trade Ship.

40. All Candidates for Certificates of Competency must first be examined in Colours.*

41. A MATE must be not less than 19 years of age, and have served four years at sea.

No candidate will be allowed to be examined unless he has served two years at sea within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

42. In Navigation, &c.—He must write a legible hand, and understand the first five rules of arithmetic, both simple and compound. He must be able to take a bearing by compass, and be conversant with the use of Mercator's chart, and be able to find, on either a "true" or "magnetic" chart,† the course to steer, and the distance from one given position to another; to find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of the ship from the object at the time of taking the second bearing.

43. He must also pass an examination in the International Code of Signals.‡

44. In Seamanship, &c.—He must possess a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog and sound signals.§ He must be able to describe the signals of distress, and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals;‖ also the use and management of the rocket apparatus in the event of his vessel being stranded. He must be able to mark and use the lead and log lines, to moor and unmoor a vessel, and to manage a ship's boat in heavy weather, &c., &c. He must also understand the construction, use, and action of the bulkhead sluices, the engine-room telegraph, &c., and to answer any other questions of a like nature appertaining to the duties of the Mate of a Home Trade Vessel which the Examiners may think proper to put to him.

45. A MASTER must be not less than 20 years of age, and have served five years at sea, of which one year must have been as First or Only Mate in the Home or Foreign Trade, during which service he must have been in possession of a Mate's Certificate for Home Trade Ships or of a First or Only Mate's Certificate for Foreign-going Ships. *Vide also para.* 19.

No candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

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* *See* Appendix F.

† *See* Appendix D. The terms "true" and "magnetic" are used throughout the Regulations for the sake of brevity and convenience for indicating charts that have compasses engraved upon them, showing the "true" or "magnetic" point of the compass respectively.

‡ *See* Appendix A.

§ *See* Appendix B.

‖ *See* Appendix C.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

46. In Navigation, &c.—In addition to the qualifications required of a Mate of a Home Trade Ship, a Master will be required to find on a chart the course to steer by compass in order to counteract the effect of a given current, and to find the distance the ship will make good towards a given point in a certain time, and to *work out practically* the correction to apply to soundings taken at a given time and place, to compare with the depth marked on the chart,* &c. He will also be required to understand the use of the quadrant, to be able to observe with it, to read *off* and *on* the arc, and to find the index error by the horizon. He will also be required to find the latitude by a meridian altitude of the sun, and to give written answers (*vide supplementary vivâ voce test, page* 40) to certain practical questions on the subject of the deviation of the compass.†

47. In Seamanship, &c.—In addition to the qualifications required of a Mate of a Home Trade Ship, a Master must understand how to rig a sea anchor, and what means to apply to keep a steamer with machinery disabled out of the trough of the sea, &c. How to get a cast of the lead in heavy weather, &c. He will be examined as to his resources for the preservation of the crew and passengers in the event of wreck, and the steps to be taken if his vessel is disabled and drifting towards a lee shore, and will be required to answer any other questions appertaining to the management of Home Trade Vessels which the Examiner may think necessary to put to him.

Failure.

Re-examination in case of failure.

48. In all cases of failure the Candidate must be examined *de novo*. If a Candidate fails in *Seamanship*, he will not be re-examined *until after a lapse* of six months. Whether the whole or part of this period must be served at sea must depend upon the subjects in Seamanship in which the Candidate failed, but what amount (if any) of sea service will be required will be left to the discretion of the Port Officer, subject, however, to revision by the Government should they see fit.

49. The Examiners in making out their Report on Form Exn. 14 should state what amount (if any) of further sea service the Candidate must perform, and they should also insert this information under Division H in Form Exn. 2.

50. If he fails three times in *Navigation* he will not be re-examined until after a lapse of three months from the date of the *last failure*.

Certificate of a lower grade.

51. If a Candidate has failed in his Examination, but the subjects in which he has failed are not included in the subjects required for a certificate of a lower grade, he may, if he desires it, receive a certificate of such lower grade.

52. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled, for re-examination for the higher grade of Certificate he will be required to pay a further full fee.

53. If a Candidate fails for bad spelling or writing, he will not be re-examined until after a lapse of at least three months.

Fees.

54. Candidates for examination, in making their application on Form Exn 2, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause, except failure to pass the colour tests, not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as

* *See* Appendix D.
† *See* Appendix E.

the case may be, they will be allowed to again present themselves for examination for a Certificate of the same grade without paying any further fee.

55. The fee for examination must be paid to the Port Officer. In any case in which a Candidate offers money to any other officer, and in any place but in the Port office, the Candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be again examined for twelve months. Fees to be paid by applicants for examination.

56. If a Candidate fail in his examination, *no part of the fee he has paid will be returned to him.* Fees to be paid by applicants for examinations. 133.

57. The fees are as follow :—

FOR "HOME TRADE SHIPS."

	Rs
Mate	6
Master	12
For the renewal of any certificate ...	5

General Instructions to Examiners and Candidates.

58. All instruments necessary for use in the examinations are supplied by the Government. Instruments used in examinations.

59. Before commencing the examination, the tables or desks must be cleared of all scraps of paper or books that are not used in the examination, and care should be taken that the candidates do not bring into the examination room any book, paper, document, or memoranda of any description whatever. No person whatever should be allowed in the room during the time of examination, but those whose duties require them to be present. Prohibited books and papers.

60 No instructors will be allowed on the premises.

61. Candidates will under no pretence whatever be allowed to leave the premises while the examination is proceeding. If a candidate has occasion to visit the retiring room, he will only be allowed to do so on the completion of the paper on which he may be engaged, when he will be required to enter in a book kept for the purpose the exact times of his leaving and returning to the examination room. When only a few candidates are under examination, two persons will not be allowed to leave the room at the same time. Candidates not to leave premises during examination.

62. Candidates should be so placed as to prevent one copying from the other, and no communication whatever between the Candidates should be allowed. Position of Candidates at examination.

63. If any blotting paper is allowed, it should be black; and when the first examination paper is issued, each Candidate should be furnished with a piece, which must be returned to the Examiner upon the completion of the last paper. Blotting paper.

64. The examination papers should be issued to the Candidates in half sheets only, and one at a time. This will prevent a Candidate from spreading out the sheets on the table in an apparently careless manner, but so as to enable his nearest neighbour to look over and copy, or examine the problems It will also enable the Examiner to look over and report upon the work on one half sheet, while the Candidate is at work upon another, and so on. When the errors are not too numerous, or when they are not from ignorance of the subject, the incorrect problems may be returned to the Candidate for correction, but in no case should the errors be pointed out by the Examiner, neither should any marks be made on the correct work of the problem, which would at once indicate how far or to what extent the work is correct. Should the problems be returned to the Examiner the second time incorrect, this would be a failure; and as the time allowed is considered ample for working out the papers carefully, this rule is expected to be strictly observed. How examination papers should be issued.

65. When from the large number of the candidates it may be found impossible to look over the work on the day of examination during the office hours, an hour in the morning of the following day may be allotted for the purpose of correcting the problems, but In certain cases problems may be corrected on morning following examination day.

in no case should a Candidate have his problem returned to him for correction after he has made the second attempt.

Vivâ voce examination.

66. In the *vivâ voce* examination a reasonable time should be allowed for the Candidate to give his answers. No assistance should be given or leading question put.

Minor corrections.

67. All outstanding or minor corrections should appear in the margin of each problem paper; also on the chart papers Exn. 9C and Exn. 9D; and unless all these corrections appear on the papers of the Candidate, they will not be considered complete.

Examination to commence with that for Second Mate.

68. In every case the examination, whether for Only Mate, First Mate, Master, is to commence with the problems for Second Mate.

Problems required as tests.

69. Examiners should bear in mind that the problems to be performed are required as tests, and for the purposes of an Examination, and not for sea-going or practical purposes alone.

70 The Candidates will be allowed to work out the various problems according to the method and the tables they have been accustomed to use.

Time allowed for Problems and Writings.

71. The rules as to the amount of time allowed are as follow: —

72. *Candidates for Home Trade Mate's Certificates* must complete the whole of their arithmetical and chart papers within *eight hours*, and Candidates for Home Trade Masters' Certificates within *ten hours*.

Additional time allowed in special cases.

73. Punctually at the expiration of the prescribed time all the papers should be called up, whether completed or not, and if not completed the Candidate will be declared to have failed, unless the Examiner see fit to lengthen the period in any special case. If, however, the period is lengthened in any case, the special circumstances of that case, and the reasons for lengthening the period, together with the time allowed, must be reported to the Government by the Examiner, in the column for "remarks" on the Form Exn. 14. It should be noted that the periods prescribed in the foregoing paragraphs are not intended to include the time occupied by the *vivâ voce* part of the examination.

74. It is anticipated that but few of the Candidates for Certificates of Competency will require the whole of the time herein allowed for completing their examination in navigation; and ample time has been prescribed, so that Candidates may perform their work in a careful, clear and legible manner, and to the entire satisfaction of the Examiners.

Supplementary vivâ voce Examination on written Papers.

75. An impression prevails in regard to the examination of Masters and Mates, that so long as a Candidate can commit to paper correct answers to the various questions requiring written answers (*e. g.*, *Forms Exn. 4a*, *Exn. 7*, *Exn. 9a*, *Exn. 9c*, *Exn. 32*, &c.), no matter how indicative the answers may be of their having been learnt off by rote *only*, the duty and responsibility of the local Examiners are at an end, and that they have no power or authority to reject a Candidate should his written answers be correct.

76. Lest, therefore, such an impression should prevail, the Government wish to point out that Candidates for Certificates of Competency are not only expected to give correct written answers, which may merely be learnt off by rote, but they are expected to possess an intelligent knowledge of the various subjects prescribed in the Regulations, particularly as regards the important subject of the Deviation of the Compass.

77. This result may be easily attained by the Examiner putting a few *vivâ voce* questions to the candidate as the papers are brought up for inspection, or at any subsequent time if more convenient. The oral questions (suggested by the printed questions and the answers given) should be such that the Examiner may satisfy himself that the candidate possesses a real knowledge of what he has written, and should be confined strictly to the subjects of the printed questions. Should the candidate then exhibit ignorance of the subjects, the Examiner (who is in a position to judge of the real knowledge the man before him posses-es) should deal with him at his discretion, notwithstanding that the candidate may have written all the answers correctly by rote.

78. When an Examiner finds it necessary to fail a Candidate in this *supplementary vivâ voce* test, a memorandum containing the particulars of the points on which the candidate was ignorant, *i.e.*, *the identical questions and the identical answers given*, must in each case be attached to his examination papers, when forwarded in the usual course to the Port Officer, or the particulars may be set forth by the Examiner in the margins of the candidate's papers in red ink.

79. If the Candidate passes he will receive the Form Exn. 16, upon which the Government will issue the certificate to the Candidate, whose testimonials, &c., will be returned at the same time. Form Exn. 16 Completion of examination.

Special Notice to Candidates.

80. The attention of Candidates is specially called to the following Regulations:—

81. Candidates are required to appear at the examination-room punctually at the time appointed.

82. Candidates are prohibited from bringing into the examination-room books, paper, or memoranda of any kind whatever. The slightest infringement of this regulation will subject the offender to all the penalties of a failure, and he will not be allowed to present himself for re-examination for a period of three months.

83. In the event of any Candidate being detected in defacing, blotting, writing in, or otherwise injuring any book or books belonging to the Government, the papers of such Candidate will be detained until the book or books so defaced be replaced by him. He will not, however, be at liberty to remove the damaged book, which will still remain the property of the Government.

84. In the event of any Candidate being discovered referring to any book or memoranda, copying from another, or affording any assistance or giving any information to another, or communicating in any way with another, during the time of examination, he will subject himself to all the penalties of a failure, and he will not be allowed to be examined for a period of six months.

85. No Candidate will be allowed to work out his problems on a slate or on waste paper.

86. No Candidate will be permitted to leave the room until he has given up the paper on which he is engaged.

87. Any Candidate who may be guilty of insolence to the Examiner or of other misconduct will render himself liable to the postponement of his examination, or, if he has passed, to the detention of his certificate for such period as the local Government may direct.

General.

88. Certificates of competency will be made and issued in the forms hereunto annexed.

89. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

90. No application from the holder of a certificate granted by the Government of Bombay to be examined for a certificate of the same legal value shall be entertained.

APPENDIX A.

EXAMINATION OF MASTERS AND MATES IN THE INTERNATIONAL CODE OF SIGNALS.

Instructions to Examiners.

The Government desire to direct the attention of the Examiners to the principal points connected with the International Code of Signals (which is to be treated as a subject in Navigation) as to which Candidates for Examination should be questioned in order to qualify for Certificates of Competency.

The Government would recommend to the Examiners a perusal of the *Report of the Signal Committee of* 1855 (which will be found at the commencement of the Signal Book), and also the *first few pages of the Book*. The information therein given will be found sufficient to make the Examiners theoretically acquainted with the characteristics of the Code, and the advantages it claims to possess over other Codes, and will enable them to appreciate and urge upon Candidates for Examination the facilities which this System of Signalling affords for easy and rapid communication.

The "comprehensiveness" and "distinctness" of the International Code are its chief recommendations.

The form of the Hoist generally indicates the nature of the Signal made, so that an observer can at sight understand the character of the Signal he sees flying.

The annexed plate gives examples which illustrate this.

The Examinations should tend to elicit a knowledge of the distinctive features of the Code above alluded to.

With this object the Examiners should make the 2, 3, and 4 Flag Signals on the Frame board which is furnished for the purpose (*always taking care first to show the Ensign and the Code Pennant at the Gaff*),* questioning the Candidates as to the distinguishing Forms of the respective Hoists, *(see Plate annexed)*, which will be indicated according as a Burgee, or a Pennant, or a Square Flag, is uppermost.

The Candidate ought to know how to find in the Signal Book the communication or the inquiry he desires to make, and how to make the Signal. The Signal to be made should *invariably* be sought for by the Candidate in the Vocabulary and Index, Part II, and never in Part I

The Candidate ought to know how to interpret a Signal.

The Examiner should place a Signal on the Frame board, and vary the Signal by showing a 2 or 3 Flag Signal, or a "Geographical" or a "Vocabulary" Signal, or the name of a Merchant Ship or a Ship of War.

The two latter signals would not of course be found in the Signal Book. The Candidate ought to point them out in the *Code List of Ships*.

A Candidate ought to be able to read off a Signal at sight, so far as to name the Flags composing the Hoist.

He ought to know the use of the Code Pennant, and of the Pennants C. and D., "Yes" and "No."

The Candidate should be practised in the use of the Spelling Table, by being made to spell his own name, or some word not to the Vocabulary of the Code.

A knowledge of the Distant Signals should be required of the Candidate, their object and the mode of signalling by the Distant Code, which will be found at the end of the Signal Book.

For this purpose two Black Balls, two Black Square Flags, and two Black Pennants will be furnished with the Frame board, and the Candidate should be required to make one or two Distant Signals, and to read off one or two made by the Examiners.

The Ball being the distinguishing symbol of the Distant Signal, any Pennants or Flags of the Code may be employed in conjunction with it, irrespective of colour. The Black Pennants and Flags are merely sent as showing best in the light background of the Frame board.

The Examiners should be careful to ascertain that the Candidate possesses a knowledge of the Distress Signals which came into operation November 1st, 1873.

Semaphores.

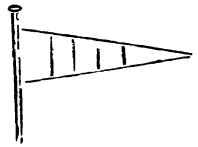
A plate at the end of the Signal Book explains the method by which the arms of the Semaphore are made to represent by their position (up, down, or horizontal) the three symbols used for Distant Signalling, viz., a Flag, a Ball, or a Pennant. Before making Signals with the Semaphore, the Black Disc with the white rim should be placed on the top of the Semaphore Mast, as it properly forms a part of the Mast itself.

The International Code is used on board Her Majesty's Ships and it has been adopted by all the principal maritime powers for their Imperial as well as their Mercantile Navies.

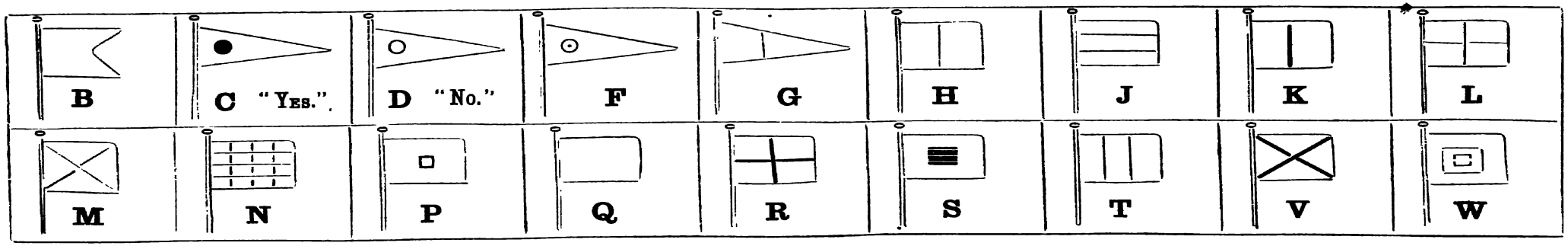
Note.—The International Code of Signals, with the Code List, is prepared by the Registrar-General of Shipping and Seamen, and may be had of the Publishers, Messrs. Spottiswoode & Co.,

* The object of this is, of course, to distinguish the Signals from those of another Code.

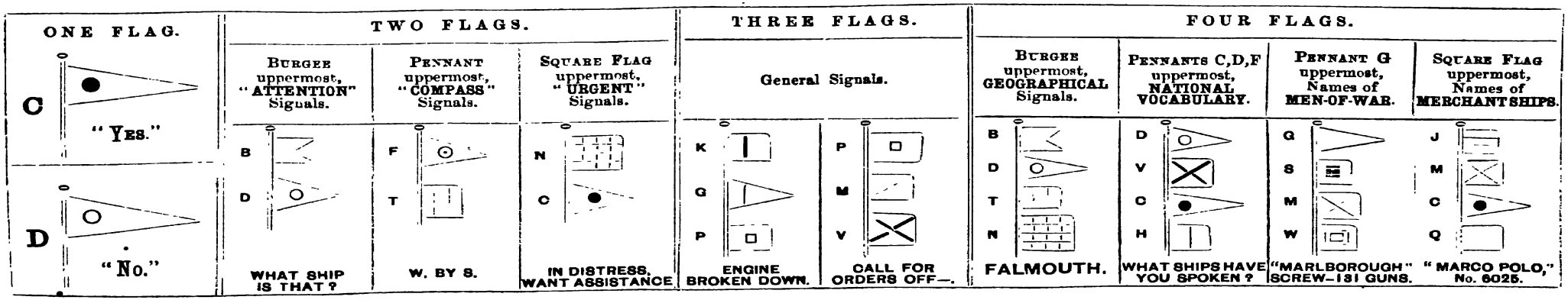
FLAGS OF THE INTERNATIONAL CODE OF SIGNALS.

"CODE SIGNAL" AND  "ANSWERING PENNANT."

N.B.—When used as the "Code Signal," this Pennant is to be hoisted under the "Ensign;" when used as the "Answering Pennant," where best seen.



The following examples will serve to illustrate how the *form of a Hoist* will usually denote the *nature of the Signal* made :—



54, Gracechurch Street, London, and the principal Booksellers at the various ports.

The Official Mercantile Navy List and Maritime Directory published for the use of Merchants, Shipowners, Shipbrokers, and others, may be obtained in like manner; price 12*s*.

APPENDIX B.

REGULATIONS RESPECTING LIGHTS AND FOG SIGNALS AND STEERING AND SAILING RULES ISSUED BY THE BOARD OF TRADE.

NOTICE.

The Board of Trade have had their attention drawn to the necessity of a more strict examination of applicants for Certificates of Competency in their knowledge of the regulations for preventing collisions at sea.

In order that the rule of the road at sea may be better understood, and that a uniform system of examination may prevail, the Board of Trade have issued the following catechism.

This catechism has received the approval of the Trinity House and Admiralty in England, and of the Council of the Admiralty of France.

The Board of Trade attach very great importance to a thorough knowledge of the steering and sailing rules on the part of every applicant for a Certificate of Competency, and a thorough examination on the part of the Examiners.

All applicants for examination, whether for certificates as masters or mates, are to be examined as to their knowledge of the steering and sailing rules each time they present themselves for examination.

Questions suggested by the following heads of examination are to be asked in addition to, and are not to supersede, any other questions proper and necessary to be asked by the Examiner.

The following questions need not be adhered to literally by the Examiner, and are not all to be asked; but the substance of the leading questions should be asked, and all that are asked should be satisfactorily answered, before an applicant is reported to have passed his examination. The Examiner should make such a selection of the questions as each case appears to him to require.

THOMAS GRAY,
Assistant Secretary.

Board of Trade,
Marine Department.

HEADS OF EXAMINATION IN REGULATIONS RESPECTING LIGHTS AND FOG SIGNALS AND IN THE STEERING AND SAILING RULES.

1. What light or lights are required by the regulations to be exhibited by sailing vessels at anchor?

One light only, viz., a white light.

2. What light or lights are required by the regulations to be exhibited by steam-ships at anchor?

The same as for sailing vessels

3. Where is the anchor light to be exhibited?

Where it can best be seen. It must of course be placed where there is the least possible chance of obstruction from spars, ropes, &c., &c.

4. To what height may the anchor light be hoisted?

It may be exhibited at any height where it can best be seen, not exceeding 20 feet above the deck.

5. What is the description of the lantern containing the anchor light required by the regulations?

A globular lantern of not less than eight inches in diameter.

6. In what direction or directions must the anchor light show?

It must show a clear, uniform, and unbroken light, visible all round the horizon.

7. At what distance must it be visible?

At least one mile.

8. What is the number of lights required by the regulations to be carried by sailing ships when under weigh at night?

Two side-lights, and to have in readiness a white light or a flare-up light to show from their stern to any vessel overtaking them

9. Of what colour are these lights, and how are they to be placed on board the ship?

A green light on the starboard side, and a red light on the port side.

10. What description of light must be shown from the sides of sailing vessels under weigh; and over how many points of the compass, and in what directions, and how far, are they required to show.

Each light must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass;

so fixed as to throw the light from right ahead to two points abaft the beam on the starboard and port sides respectively; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

11. What lights are they to carry when being towed at night?

The same.

12. Are the side-lights required to be fitted with screens; and if so, of what length, and how?

Yes, on the inboard side; at least three feet in length, measuring forward from the light. They are to be so fitted as to prevent the coloured lights from being seen across the bows.

13. What is the number of lights required by the regulations to be carried by steam-ships when under steam at night?

Three lights, and to have in readiness a white light or flare-up light to show from their stern to any vessel overtaking them.

14. Of what colour are these lights, and how are they to be placed on board the ship?

A white light on or in front of the foremast at a height above the hull of not less than 20 feet; and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth. A green light on the starboard side, and a red one on the port side.

15. Over how many points of the compass, in what direction, and how far, is the foremast-head light of a steamer required to show?

Over 20 points, viz., from right ahead to two points abaft the beam on both sides. It must be of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

16. Are the side-lights required to be fitted with screens; and if so, of what length?

The green and red lights are to be fitted with screens on the inboard side, extending at least three feet forward from the light, as in the case of sailing vessels.

17. Over how many points of the compass, in what directions, and how far, are the coloured side lights of steamers required to show?

The side-lights must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass, on each side of the ship, *i.e.*, from right ahead to two points abaft the beam on the starboard and port sides respectively, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles.

18. What description of lights are steamers required by the regulations to carry when they are not under steam, but under sail only?

Side-lights only, the same as sailing vessels.

19. What exceptional lights are to be carried by small sailing vessels in certain cases?

Whenever, as in the case of small vessels during bad weather, the green and red side lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

20. What description of lights are pilot vessels required to carry when on their stations on pilotage duty?

A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

21. What description of lights are pilot vessels required to carry when not on their station on pilotage duty?

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

22. What lights are open boats and fishing vessels of less than 20 tons net registered required to carry when under way and not actually engaged in fishing.

Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

23. What lights are fishing vessels and fishing boats of 20 tons net register, or upwards, required to carry when under way and not actually engaged in fishing?

They must carry similar lights to those of other ships when under way.

24. What lights are steam trawlers of 20 tons gross register, or upwards, whilst actually engaged in trawling, and not being stationary, required to carry?

All steam-vessels engaged in trawling must carry either one of the two following arrangements of lights, whichever of the two may be the more convenient:—

(*a*) The usual green and red side-lights, and foremast head light, similar to those carried by other steamships; or

(*b*) They must carry on or in front of the foremast head, and in the same position as the white light which other steamships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side; such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: and (2) a white light in a gobular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform, and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet, nor more than 12 feet.

25. What lights are sailing trawlers whilst actually engaged in trawling, and not being stationary, required to carry.

All sailing vessels, of whatever tonnage, whilst engaged in trawling, must carry either one of the three following arrangements of lights, whichever of the three, (*a*), (*b*), or (*c*), may be the most convenient:—

(*a*) They may carry the green and red side-lights similar to those of other sailing ships; or

(*b*) They may carry on or in front of the foremast head a lanthorn having a green glass on the starbord side and a red glads on the port side, so constructed, fitted, and arranges that the red and green do not converge, and so as to show an uniform and unbroken green light over an are of the horizon of 12 points of the compass, and an uniform and unbroken red light over an are of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft the beam on the port side; and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet; or

(*c*) They may carry a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed at to show a clear, uniform and unbroken light all round the horizon, and visible on a dark night, with a clear atmosphere, for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by, another ship or vessel in sufficient time to prevent collision.

26. What lights are vessels whilst actually engaged in drift net fishing required to carry?

All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than 5 feet and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night, with a clear atmosphere, for a distance of not less than 3 miles.

27. What lights are vessels whilst actually engaged in line fishing required to carry?

A vessel engaged in line fishing is required to carry the same lights as a vessel engaged in drift net fishing.

28. If a vessel, when fishing, becomes stationary in consequence of her gear getting fast to a rock or other obstruction, what signal must she make?

She must show the same light, and if a fog, mist, or falling snow prevail, she must make the same fog signal, as if she were at anchor.

29. What lights are fishing vessels and open boats required to exhibit when at anchor?

Between sunset and sunrise they must exhibit a white light, visible all round the horizon at a distance of at least one mile, the same as any other vessel.

30. What sound signals are fishing vessels required to make whilst engaged in fishing in thick weather?

In fog, mist, or falling snow, a drift net vessel attached to her nets, and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

31. May fishing vessels and open boats use flare-up lights, and if so, at what part, or parts, of the vessel should they be exhibited?

Yes. Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

32. Do these regulations referring specially to fishing vessels and boats apply to foreign vessels, and to all parts of the world?

No, with the exception of the *first paragraph* of Article 10 of the regulations, they apply only to British vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre.

33. What lights are steam-ships required to carry when towing other ships?

A steam-ship, when towing another ship, shall, in addition to her side lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light which other steam-ships are required to carry.

34. What light is a ship which is being overtaken by another required to show?

A ship which is being overtaken by another shall show from her stern to such last mentioned ship a white light or a flare-up light.

35. Describe the lights and the day signals that vessels employed in laying or picking up a telegraph cable are required to carry.

A ship, whether a steam-ship or a sailing-ship employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line over one another, not less than six feet apart; the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than her fore-mast head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

36. Describe the lights and the day signals that vessels which from any cause are not under command are required to carry.

A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over than other, not less than three feet apart, and of such a charater as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of but not lower than her foremast head, three black balls or shapes, each two feet in diameter.

37. Are the above-mentioned ships to carry side-lights?

The above ships, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

38 What are the previous mentioned shapes and lights intended to indicate to approaching ships?

These shapes and lights are to be taken by approaching ships as signals that the ship using them is not under command, and cannot therefore get out of the way.

39. Do these rules prevent squadrons and convoys from carrying special lights?

No. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war, or for ships sailing under convoy.

40. What sound signals are steam-ships and sailing ships required by the regulations to be provided with?

A steam-ship shall be provided with a steam whistle or other efficient steam-sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by a bellows or other mechanical means, and also with

an efficient bell. A sailing ship shall be provided with a similar fog-horn and bell.

41. When are these signals to be used?

In fog, mist, or falling snow, whether by day or night.

42. What sound signal is to be made by steam-ships and sailing ships when not under way?

A steam-ship and a sailing ship when not under way shall, at intervals of not more than two minutes, ring the bell.

43. What sound signal is required to be made by a steam-ship when under way?

A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes a prolonged blast.

44. What sound signals are required to be made by sailing ships when under way?

A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

45. Do the regulations require ships to take any other precaution during thick weather?

Yes. Art. 13 says every ship, whether a sailing ship or steam-ship, shall, in a fog, mist, or falling snow, go at a moderate speed.

46. Is it optional for a steam-ship to make any other signals with her steam whistle?

Yes; but only to vessels in sight, *i.e.*, not to vessels which are so obscured by fog, mist, or falling snow that they cannot be seen, though their whistles may be heard.

Art. 19 provides that in taking any course authorised or required by the regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz:—

One short blast to mean "I am directing my course to starboard."

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

47. What precaution is to be taken by steamers approaching another vessel?

If there is risk of collision, the steamer is to slacken speed, or, if necessary, stop and reverse.

48. If you see two white lights in a vertical line one over the other, what do they denote as regards the vessel carrying them?

They denote the presence of a steamer towing with her side lights not within sight on account of distance, fog, &c.; or a vessel end on to me engaged in drift net fishing, or in line fishing or it may be a steam trawler end on, or within two points of being end on, to me.

49. If you see a green, or a red, light with a white light below, what do they denote?

They denote the presence of either a sailing, or a steam, vessel engaged in trawling.

50. If you see both the green and red lights with a white light below them, what do they denote?

They denote the presence of a sailing trawler coming end on to me.

51. If you see a white light alone, what does it denote as regards the ship carrying it?

It denotes the presence of a vessel or boat at anchor; or a pilot vessel on her station; or the mast-head light of a vessel, under steam, with her side-lights not within sight on account of distance fog, &c.; or a fishing vessel stationary through her gear getting fast to some obstruction, or a sailing trawler engaged in trawling (1) under one arrangement of lights heading so that her side-lights are obscured, (2) under another arrangement from the red pyrotechnic light not having been exhibited, or it may be a light shown from the stern of a vessel which is being overtaken.

52. If you see a green or a red light without a white light, or both a green and a red light without a white light, is the vessel carrying the light or lights seen, a vessel under steam or a vessel under sail?

A vessel under sail?

53. How do you know?

Because there is no white mast-head light.

54. If you see a white light over a coloured light, is the vessel a vessel under sail or a vessel under steam?

A vessel under steam. The mast-head light denotes that the vessel is under steam.

[The Examiner will then take one model of a vessel, which he will place on the table, and call it A. He will then take the mast or stand with a white and red ball on it and place it at the other end of the table and call it B.

The Examiner should be careful that the model of one vessel only is used when the questions numbered 55 to 60 are asked.]

55. A is a steamer going north, seeing a white light and red light right ahead at B. Are A and the vessel B showing the two lights meeting end on or nearly end on, or is B passing A, or is B crossing the path of A, and in what direction, and how do you know?

Passing to port, because if I see a red light ahead, I know that the head of the vessel carrying that red light must be pointing away

in some direction to my own port or left hand. The ship showing the red light has her port or left side more or less open to A.

56. If A is going north, within what points of the compass must the vessel B showing the white and red lights be steering?

B must be going from a little W. of S. to W. N.-W.

57. How do you know this?

Because the screens being properly fitted, I could not see the red light of B at all with the vessel's head in any other direction.

58. A is a steamer going north, and seeing a white and green light ahead. Are A and B meeting, or is B passing A, or is B crossing the course of A, and in what direction; and how do you know?

B is passing to starboard of A, because if I see a green light ahead, I know that the head of the vessel carrying that green light must be pointing away in some direction to my starboard or right hand. The ship showing the green light has her right or starboard side more or less open to me.

59. As A is going north, within what points of the compass must the vessel showing the white and green lights be steering?

B must be going from a little E. of South to E.N.E.

60. How do you know?

Because the screens being properly fitted, I cannot see the green light at all with the vessel's head in any other direction.

61. If a steamer A sees the *three* lights of another steamer B ahead or nearly ahead, are the two steamers meeting, passing, or crossing?

Meeting end on, or nearly end on.

62. Do the regulations expressly require the course of a ship to be altered to starboard in any case, and if so, when?

Yes; in the case of two steamers meeting end on, or nearly end on.

63. Do they expressly require the course of a ship to be altered to starboard in any other case; and if so, in what other?

No. It is not in any other case expressly required by the regulations.

[The Examiner should see that the candidate puts the models in the positions indicated by the question 64, and following.]

64. If a steamer A sees another steamer's red light B on her own starboard side, are the steamers meeting, passing, or crossing; and how do you know?

Crossing, because the red light of one is opposed to the green light of the other; and whenever a green light is opposed to a red light or a red light to a green light, the ships carrying the lights are, crossing ships.

65. Is A to stand on; and if not, why not?

A has the other vessel B on her own starboard side. A knows she is crossing the course of B, because she sees the red light of B on her (A's) own starboard side. A also knows she must get out of the way of B, because Article 16 expressly requires that the steamer that has the other on her own starboard side shall keep out of the way of the other.

66. Is A to starboard or to port in such a case?

A must do what is right so as to get herself out of the way of B: it is generally preferable to pass under a ship's stern rather than attempt to cross her bows, but it depends entirely on the position and relative speed of the two ships, and therefore the regulations wisely leave the giving way ship to get out of the way in any manner that may be most desirable, so always that she does get out of the way.

67. If A gets into collision by porting, will it be because she is acting on any rule?

No; the rule does not require her either to port or to star board If she ports, and gets into collision by porting, it is not the fault of any rule.

68. If a steamer A sees the green light of another steamer B on her own (A's own) port bow, are the two steamers meeting, passing, or crossing; and how do you know?

Crossing, because the green light of one ship is shown to the red light of the other.

69. What is A to do, and why?

By the rule contained in Article 22 of the Regulations, A is required to keep her course, subject only to the qualification that due regard must be had to all dangers of navigation; and that due regard must also be had to any special circumstances which may exist in any particular case rendering a departure from that rule necessary in order to avoid immediate danger. The crossing ship B on A's port side must get out of the way of A, because A is on B's starboard side.

70 A, a steamer, sees the green light of another steamer, B, a point on her A's port bow. Is there any regulation requiring A to port in such a case; and if so, where is it to be found?

There is not any.

71. Are steam-ships to get out of the way of sailing ships?

If a steamer and a sailing ship are proceeding in such direction as to involve risk of collision, the steamer is to get out of the way of the sailing ship, unless the sailing ship is overtaking the steamer.

72. What is to be done by A, whether a steamer or a sailing ship, if overtaking B?

A is to keep out of the way of B.

73. When by the rules one of two ships is required to keep out of the way of the other, what is the other to do?

To keep her course. This is absolutely necessary to enable the commander of the ship required by the regulations to keep out of the way, to act with decision and promptitude, which he cannot possibly, unless he knows what the other vessel is going to do.

74. Is there any qualification or exception to this?

Yes. Due regard must be had to all dangers of navigation, and to any special circumstances which may exist in any particular case, and require a departure from the regulations to avoid immediate danger.

75. Is there any general direction in the steering and sailing rules; and if so, what is it?

Yes, it is this: that nothing in the rules shall exonerate any ship, or the owner, master, or crew thereof, from the consequences of any neglect to carry lights, or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

76. Can you repeat article (———) of the regulations, I refer to the article containing the rule for (———)?

[The Examiner should repeat this question, naming a different article each time.]

77. What does the Act of Parliament provide as to the obligation of owners and masters in obeying the regulations respecting lights, fog signals, and steering and sailing?

Section 27 of "the Merchant Shipping Act Amendment Act, 1862," provides that owners and masters shall be bound to obey the regulations, and it also provides that in case of wilful default by the master or owner he shall be deemed to be guilty of a misdemeanor for each infringement.

78. What do breaches of the regulations imply?

If an accident happens through non-observance of the regulations, it implies wilful default on the part of the person in charge of the deck at the time, unless it is shown to the satisfaction of the court hearing the case that the special circumstances of the case rendered a departure from the rules necessary.

79. If collision ensues from a breach of the regulations, who is to be deemed in fault for the collision?

The person by whom the regulations are infringed, unless the court hearing the case decides to the contrary.

80. Is there any special rule for steam-ships navigating narrow channels?

In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which is on the starboard side of such ship.

81. Do the regulations apply to sea-going ships in harbours and in rivers?

Yes; unless there is any rule to the contrary made by a competent authority.

82. Do they apply to British ships only?

No, to foreign ships as well, with the exception of paragraphs (*a*), (*b*), (*c*), (*d*), (*e*), (*f*) and (*g*), of Article 10, which apply only to British fishing vessels.

83. Do you know where the present regulations are to be found?

Yes, in the Orders in Council of the 11th August 1884, the 30th December 1884, and 24th June 1885. Copies are given away on application to the Board of Trade.

84. Is one ship bound to assist another in case of collision?

Yes.

85. What is the penalty for default?

If the master or person in charge of the ship fails to render assistance without reasonable excuse, the collision is, in absence of proof to the contrary, to be deemed to be caused by his wrongful act, neglect, or default.

86. Is there any other penalty attached to not rendering assistance?

Yes. If it is afterwards proved that he did not render assistance, his certificate may be cancelled or suspended by the court investigating the case.

87. Is it not expected that you should understand the regulations before you take charge of the deck of a ship?

It is.

88. Why?

If I do not understand them and am guilty of default, the consequences will be very serious to me.

89. What would be a serious offence?

To cause a collision by porting the helm or doing anything not required by the regulations and without due consideration.

REGULATIONS FOR PREVENTING COLLISIONS AT SEA, ORDER IN COUNCIL OF 11TH AUGUST 1884.

Preliminary.

Art. 1. In the following rules every steam-ship which is under sail and not under steam is to be considered a sailing ship; and every steam-ship which is under steam, whether under sail or not, is to be considered a ship under steam.

Rules Concerning Lights.

Art. 2. The lights mentioned in the following Articles, numbered 3, 4, 5, 6, 7, 8, 9, 10 and 11, and no others, shall be carried in all weathers, from sunset to sunrise.

Art. 3. A sea-going steam-ship when under way shall carry—

(*a*) On or in front of the foremast, at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth, a bright white light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 20 points of the compass, so fixed as to throw the light 10 points on each side of the ship, viz. from right ahead to two points abaft the beam on either side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

(*b*) On the starboard side, a green light so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*c*) On the part side, a red light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*d*) The said green and red side-lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

Art. 4. A steam-ship, when towing another ship, shall in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position, as the white light which other steam-ships are required to carry.

Art. 5. (*a*) A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles; and shall by day carry in a vertical line one over the other, not less than three feet apart, in front of, but not lower than, her foremast head, three black balls or shapes, each two feet in diameter.

(*b*) A ship, whether a steam-ship or a sailing ship, employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular laterns, each not less than 10 inches in diameter, in a vertical line one over another, not less than six feet apart; the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than, her foremast head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

(*c*) The ships referred to in this Article, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

(*d*) The lights and shapes required to be shown by this Article are to be taken by other ships as signals that the ship showing them is not under command, and cannot therefore get out of the way. The signals to be made by ships in distress and requiring assistance are contained in Article 27.

Art. 6. A sailing ship under way, or being towed, shall carry the same lights as are provided by Article 3 for a steam-ship under way, with the exception of the white light, which she shall never carry.

Art. 7. Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessels, ready for use: and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent a collision, in such a manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

Art. 8. A ship, whether a steam-ship or a sailing ship, when at anchor, shall carry, where it can best be seen, but at a height not exceeding 20 feet above the hull, a white light, in a globular lantern of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light visible all round the horizon at a distance of at least one mile.

Art. 9. A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall

carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

Art. 10. Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

The following portion of this article applies only to fishing vessels and boats when in the sea off the cost of Europe lying north of Cape Finisterre:—

(*a*) All fishing vessels and fishing boats of 20 tons not registered tonnage, or upwards, when under way and when not required by the following regulations in this article to carry and show the lights therein named, shall carry and show the same lights as other vessels under way.

(*b*) All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of th vessel shall be not less than five feet, and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night with a clear atmosphere, for a distance of not less than three miles.

(*c*) A vessel employed in line fishing with her lines out shall carry the same lights as a vessel when engaged in fishing with drift nets.

(*d*) If a vessel when fishing becomes stationary in consequence of her gear getting fast to a rock or other obstruction, she shall show the light and make the fog signal for a vessel at anchor.

(*e*) Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing, with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

(*f*) Every fishing vessel and every open boat when at anchor between sunset and sunrise shall exhibit a white light visible all round the horizon at a distance of at least one mile.

(*g*) In fog, mist, or falling snow, a drift net vessel attached to her nets and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

Art. 11. A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

Sound Signals for Fog, &c.

Art. 12. A steam-ship shall be provided with a steam whistle or other efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by a bellows or other mechanical means, and also with an efficient bell.* A sailing ship shall be provided with a similar fog-horn and bell.

In fog, mist, or falling snow, whether by day or night, the signals described in this Article shall be used as follows; that is to say—

(*a*) A steam-ship under way shall make with her steam whistle or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

(*b*) A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

(*c*) A steam-ship and a sailing ship, when not under way, shall, at intervals of not more than two minutes, ring the bell.

Speed of Ships to be moderate in Fog, &c.

Art. 13. Every ship, whether a sailing ship or steam-ship, shall in a fog, mist, or falling snow, go at a moderate speed.

* In all cases where the regulations require a bell to be used, a drum will be substituted on board Turkish vessels.

Steering and Sailing Rules.

Art. 14. When two sailing ships are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, viz.—

(*a*) A ship which is running free shall keep out of the way of a ship which is close-hauled.

(*b*) A ship which is close-hauled on the port tack shall keep out of the way of a ship which is close-hauled on the starboard tack.

(*c*) When both are running free with the wind on different sides, the ship which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free with the wind on the same side, the ship which is to windward shall keep out of the way of the ship which is to leeward.

(*e*) A ship which has the wind aft shall keep out of the way of the other ship.

Art. 15. If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This article only applies to cases where ships are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two ships which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are, when each of the two ships is end on, or nearly end on, to the other; in other words, in cases in which, by day, each ship sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each ship is in such a position as to see both the side-lights of the other.

It does not apply, by day, to cases in which a ship sees another ahead crossing her own course; or by night, to cases where the red light of one ship is opposed to the red light of the other, or where the green light of one ship is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

Art. 16. If two ships under steam are crossing, so as to involve risk of collision, the ship which has the other on her own starboard side shall keep out of the way of the other.

Art. 17. If two ships, one of which is a sailing ship, and the other a steam-ship, are proceeding in such directions as to involve risk of collision, the steam-ship shall keep out of the way of the sailing ship.

Art. 18. Every steam-ship, when approaching another ship, so as to involve risk of collision, shall slacken her speed or stop and reverse, if necessary.

Art. 19. In taking any course authorised or required by these Regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.—

One short blast to mean "I am directing my course to starboard:"

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

Art. 20. Notwithstanding anything contained in any preceding Article, every ship, whether a sailing ship or a steam-ship, overtaking any other shall keep out of the way of the overtaken ship.

Art. 21. In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such ship.

Art. 22. Where by the above rules one of two ships is to keep out of the way, the other shall keep her course.

Art. 23. In obeying and construing these rules due regard shall be had to all dangers of navigation; and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

No Ship, under any circumstances, to neglect proper Precautions.

Art. 24. Nothing in these rules shall exonerate any ship, or the owner, or master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

Reservation of Rules for Harbours and Inland Navigation.

Art. 25. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbour, river, or inland navigation.

Special Lights for Squadrons and Convoys.

Art. 26. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with

respect to additional station and signal lights for two or more ships of war or for ships sailing under convoy.

Art. 27. When a ship is in distress, and requires assistance from other ships or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, that is to say—

In the day-time—

1. A gun fired at intervals of about a minute;
2. The International Code signals of distress indicated by N. C.
3. The distant signal, consisting of square flag, having either above or below it a ball or anything resembling a ball.

At night—

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, throwing stars of any colour or description, fired one at a time, at short intervals.

ORDERS IN COUNCIL OF 30TH DECEMBER 1884 AND 24TH JUNE 1885.

ALTERNATIVE LIGHTS FOR TRAWLERS WHEN ENGAGED IN TRAWLING, HAVING THEIR TRAWLS IN THE WATER AND NOT BEING STATIONARY.

1884.—PART I.—STEAM-VESSELS OF 20 TONS GROSS REGISTER TONNAGE OR UPWARDS.

(1) On or in front of the foremast head and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side, such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet nor more than 12 feet.

1884.—PART II.—SAILING-VESSELS OF 20 TONS NET REGISTER TONNAGE OR UPWARDS.

(1) On or in front of the foremast head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft the beam on the port side: and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than lanthorn the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet.

1885.—SAILING TRAWLERS OF ANY TONNAGE.

As regards sailing vessels engaged in trawling, such vessels having their trawls in the water and not being stationary in consequence of their gear getting fast to a rock or other obstruction, if they do not carry and show the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in Part 2 of the Schedule to the said recited Order in Council of the 30th of December 1884, shall carry and show in lieu of the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in paragraph 2 of the Schedule to the said recited Order, other lights as follows, that is to say:

A white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, and visible on a dark night

Steering and Sailing Rules.

Art. 14. When two sailing ships are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, viz.—

(*a*) A ship which is running free shall keep out of the way of a ship which is close-hauled.

(*b*) A ship which is close-hauled on the port tack shall keep out of the way of a ship which is close-hauled on the starboard tack.

(*c*) When both are running free with the wind on different sides, the ship which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free with the wind on the same side, the ship which is to windward shall keep out of the way of the ship which is to leeward.

(*e*) A ship which has the wind aft shall keep out of the way of the other ship.

Art. 15. If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This article only applies to cases where ships are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two ships which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are, when each of the two ships is end on, or nearly end on, to the other; in other words, in cases in which, by day, each ship sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each ship is in such a position as to see both the side-lights of the other.

It does not apply, by day, to cases in which a ship sees another ahead crossing her own course; or by night, to cases where the red light of one ship is opposed to the red light of the other, or where the green light of one ship is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

Art. 16. If two ships under steam are crossing, so as to involve risk of collision, the ship which has the other on her own starboard side shall keep out of the way of the other.

Art. 17. If two ships, one of which is a sailing ship, and the other a steam-ship, are proceeding in such directions as to involve risk of collision, the steam-ship shall keep out of the way of the sailing ship.

Art. 18. Every steam-ship, when approaching another ship, so as to involve risk of collision, shall slacken her speed or stop and reverse, if necessary.

Art. 19. In taking any course authorised or required by these Regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.—

One short blast to mean "I am directing my course to starboard:"

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

Art. 20. Notwithstanding anything contained in any preceding Article, every ship, whether a sailing ship or a steam-ship, overtaking any other shall keep out of the way of the overtaken ship.

Art. 21. In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such ship.

Art. 22. Where by the above rules one of two ships is to keep out of the way, the other shall keep her course.

Art. 23. In obeying and construing these rules due regard shall be had to all dangers of navigation; and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

No Ship, under any circumstances, to neglect proper Precautions.

Art. 24. Nothing in these rules shall exonerate any ship, or the owner, or master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

Reservation of Rules for Harbours and Inland Navigation.

Art. 25. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbour, river, or inland navigation.

Special Lights for Squadrons and Convoys.

Art. 26. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with

respect to additional station and signal lights for two or more ships of war or for ships sailing under convoy.

Art. 27. When a ship is in distress, and requires assistance from other ships or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, that is to say—

In the day-time—

1. A gun fired at intervals of about a minute;
2. The International Code signals of distress indicated by N. C.
3. The distant signal, consisting of square flag, having either above or below it a ball or anything resembling a ball.

At night—

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, throwing stars of any colour or description, fired one at a time, at short intervals.

ORDERS IN COUNCIL OF 30TH DECEMBER 1884 AND 24TH JUNE 1885.

ALTERNATIVE LIGHTS FOR TRAWLERS WHEN ENGAGED IN TRAWLING, HAVING THEIR TRAWLS IN THE WATER AND NOT BEING STATIONARY.

1884.—PART I.—STEAM-VESSELS OF 20 TONS GROSS REGISTER TONNAGE OR UPWARDS.

(1) On or in front of the foremast head and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side, such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet nor more than 12 feet.

1884.—PART II.—SAILING-VESSELS OF 20 TONS NET REGISTER TONNAGE OR UPWARDS.

(1) On or in front of the foremast head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft the beam on the port side: and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than lanthorn the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet.

1885.—SAILING TRAWLERS OF ANY TONNAGE.

As regards sailing vessels engaged in trawling, such vessels having their trawls in the water and not being stationary in consequence of their gear getting fast to a rock or other obstruction, if they do not carry and show the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in Part 2 of the Schedule to the said recited Order in Council of the 30th of December 1884, shall carry and show in lieu of the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in paragraph 2 of the Schedule to the said recited Order, other lights as follows, that is to say:

A white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, and visible on a dark night

with a clear atmosphere for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by another ship or vessel in sufficient time to prevent collision.

AIDS TO MEMORY IN FOUR VERSES, BY THOMAS GRAY.

1. *Two Steam-ships meeting.*

When both side lights you see ahead—
Port your helm and show your RED.

2. *Two Steam-ships passing.*

GREEN to GREEN—or, RED to RED—
Perfect safety—Go ahead!

3. *Two Steam-ships crossing*

Note.—This is the position of greatest danger: there is nothing for it but good look-out, caution, and judgment.

If to your starboard RED appear,
It is your duty to keep clear;
To act as judgment says is proper:—
To Port—or Starboard—Back,—or, Stop her!

But when upon your Port is seen
A Steamer's Starboard Light of GREEN,
There's not so much for you to do,
For GREEN to Port keeps clear of you.

4. *All Ships must keep a good look-out, and Steam-ships must stop and go astern, if necessary.*

Both in safety and in doubt
Always keep a good look-out;
In danger, with no room to turn,
Ease her, stop her, go astern.

14*th October* 1867.

APPENDIX C.

DISTRESS AND PILOT SIGNALS.

M. S. Act 1873.

The following sections, together with the schedules referred to therein, of the "Merchant Shipping Acts, Amendment Act, 1873," relate to Signals of Distress and Signals for Pilots. (*See also* "*Regulations for preventing Collisions at Sea. Article* 27.)

Signals of distress.

18. The signals specified in the first schedule to this Act shall be deemed to be signals of distress.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals, except in the case of a vessel being in distress, shall be liable to pay compensation for any labour undertaken, risk incurred, or loss sustained in consequence of such signal having been supposed to be a signal of distress, and such compensation may, without prejudice to any other remedy, be recovered in the same manner in which salvage is recoverable.

Signals for pilots.

19. If a vessel requires the services of a pilot, the signals to be used and displayed shall be those specified in the second schedule to this A

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals for any other purpose than that of summoning a pilot, or uses or causes or permits any person under his authority to use any other signal for a pilot, shall incur a penalty not exceeding twenty pounds.

Power to alter rules as to signals.

20. Her Majesty may from time to time by Order in Council repeal or alter the rules as to signals contained in the schedules to this Act or make new rules in addition thereto, or in substitution therefor, and any alterations in or additions to such rules made in manner aforesaid shall be of the same force as the rules in the said schedules.

SCHEDULES.

SCHEDULE I.—SIGNALS OF DISTRESS.

In the day time.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress in the daytime:—

1. A gun fired at intervals of about a minute;
2. The International Code signal of distress indicated by N C;
3. The distant signal, consisting of a square flag having either above or below it a ball, or anything resembling a ball.

At night.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress at night:

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, of any coloul or description, fired one at a time, at short intervals.

SCHEDULE II.—SIGNALS TO BE MADE BY SHIPS WANTING A PILOT.

In the day time.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot in the day time, viz:—

1. To be hoisted at the fore, the Jack or other national colour usually worn by merchant ships, having round it a white border, one-fifth of the breadth of the flag; or
2. The International Code pilotage signal indicated by P T.

At night.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot at night, viz.—

1. The pyrotechnic light, commonly known as a blue light, every fifteen minutes; or
2. A bright white light, flashed or shown at short or frequent intervals, just above the bulwarks, for about a minute at a time.

APPENDIX D.

EXAMINATION IN CHART.

FOR ALL GRADES WHERE THE CHART IS USED (INCLUDING "HOME TRADE" CANDIDATES).

[The candidate will be required to work out the following questions on either a "true" or "magnetic" chart, * whichever may be handed to him by the Examiner; and also determine whether the chart is a "true" or "magnetic" one, and whether it is for the northern or southern, and eastern or western hemispheres.

1. Using deviation [card] [curve] † No. find the course to steer by compass from to ; also the distance.

Answer.—Compass course .
Distance .
Variation .
Deviation .

2. With the ship's head on the above-named compass course a [point] [light-house] bore by compass and bore by the same compass, find the ship's position.

Answer.—Latitude . .
Longitude .

3. With the ship's head as above, a [point] [light-house] bore by compass , and after continuing on the same course miles, it bore , find the position of ship and her distance from at the time of taking the second bearing.

Answer.—Latitude .
Longitude .
Distance .

All the foregoing questions must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature .
Date .
Chart used .

ADDITIONAL FOR MASTERS (INCLUDING "HOME TRADE" CANDIDATES).

4. Find the course to steer by compass from to (*see* Question 1) to counteract the effect of a

* The terms "true" and "magnetic" are used for the sake of brevity, and convenience, for indicating charts that have compasses delineated upon them showing the "true" or "magnetic" points of the compass respectively.

† A candidate for a Master's Certificate is expected to use either a card of deviations, or a curve of deviations on a Napier's diagram, whichever the Examiner may think proper to put before him.

current which set ____ at the rate of ____ miles per hour, the ship making by log ____ miles per hour; also the distance the ship would then make good in ____ hours towards

Answer.—*Compass course*

Distance

5. *On* ____ *being off* ____ *took a cast of* the lead; *required the correction to be applied to the depth obtained* by the lead line *before* comparing it with the depth marked on the chart.

6. What do you understand the small numbers to indicate that you see placed about the chart, and at what time of tide?

7. What do the Roman numerals indicate that are occasionally seen near the coasts and in harbours?

8. How would you find, *approximately, the time of high water* at any place, the Admiralty tables not being at hand nor any other special tables available?

All the foregoing questions, and those on Form Exn. 9 C., must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature

Date

APPENDIX E.

DEVIATION OF THE COMPASS.

(For Masters of Home Trade Ships.)

[The Applicant must answer in writing, on paper given him by the Examiner, all the following questions, numbering his answers to correspond with the numbers of the questions.]

1. When taking a Meridian Altitude, how do you know when the sun is on the Meridian; or, in other words, when it is noon?
2. How does the sun bear when on the meredian of an observer in these latitudes (Home Trade Limits)?
3. What do you mean by deviation of the compass, and how is it caused?
4. Having determined the deviation, how do you know when it is easterly, and when westerly?
5. Supposing the sun when on the meridian bore by your compass ———— what would be the deviation of that Compass for the direction of the ship's head at the time, the variation given on the Chart being ———— ?
6. How could you find the deviation of your Compass when in port, or when sailing along a cost?
7. Name some suitable objects by which you could readily obtain the deviation of your Compass, when sailing along the coasts of the Channel you have been accustomed to use?
8. The bearing of two objects when in a line with each other was found on the Chart to be ———— magnetic; but when brought in a line on board they bore ———— by your Compass; required the deviation of your Compass for the direction of the ship's head at the time?
9. What means are there for checking the deviation of your Compass by night?
10. Supposing the North Star (*Polaris*) bore ———— by your Compass, what would be the deviation (approximately) of that Compass for the direction the ship's head at the time, supposing the variation given on the Chart to be ———— ?
11. Do you expect the deviation to change? if so, state under what circumstances?
12. What is meant by variation of the Compass, and what is the cause of it?

APPENDIX F.

INSTRUCTIONS TO EXAMINERS.

Examination in Colours.

Herewith are—

(*a*) A lanthorn having in it a lamp in which kerosine is to be burnt.

(*b*) A slide having ground glass in it.

(*c*) Nine slides, each having a coloured glass in it. The colours are as follow :—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1.
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

(*d*) Cards, five of each as follow :—

1. White
2. Black.
3. Red.
4. Pink.*
5. Green.
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (Cards.)

In conducting the examination by daylight the examiner should do it in three ways—

1. The cards should be mixed up. The examiner should then hold up each card separately, and ask the candidate to name the colour, and if the candidate does so without hesitation, he is to be regarded as having passed the day-light test.
2. If the candidate hesitates in any of his answers so as to raise a doubt in the mind of the examiner as to his ability to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap
4. The result of the examination should be noted and recorded in each case.

Examination by Artificial light.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn ; and, at least, 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked if it appears to him to have any colour, and if so, what colour ?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star* is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having "failed" if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c. ; or to name card No. 7 as red, green, or yellow ; or glass No. 2 as green blue, or yellow ; or glass No. 5 as red, pink, salmon, &c. ; or glass No. 7 as bright red or bright green ; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B.

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black, by daylight ; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown), he may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Local Certificate of Competency

AS

MASTER.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of Master in the* _____ *service, I do hereby, in pursuance of Act No. I of* 1859 *of the Legislative Council of India, grant you this CERTIFICATE OF COMPETENCY.*

Given *under my* Hand and Seal,

this _____ *day of* _____ 18____.

By order of the Government of Bengal,

Under-Secy. to the Govt. of Bengal.

No. of Certificate

*Bearer*_____

*Date and Place of Birth*_____

*No. of Register Ticket*_____

*Signature*_____

Any ***MASTER*** *or* ***MATE*** *who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs.* 500.

N.B.—Any person other than the owner thereof becoming possessed of this certificate is required to transmit it forthwith to the Port Officer, Calcutta.

*Issued at Calcutta on the*_____*day of*_____18___.

Registered,

Port Officer of Calcutta.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Local Certificate of Competency

AS

MATE.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of* _____ *Mate in the* _____ *service, I do hereby, in pursuance of Act No. I of* 1859 *of the Legislative Council of India, grant you this CERTIFICATE OF COMPETENCY.*

By order of the Government of Bengal,

Given under my Hand and Seal;

this _____ *day of* _____ 18____. *Under-Secy. to the Govt. of Bengal.*

No. of Certificate

Bearer _____

Date and Place of Birth _____

No. of Register Ticket _____

Signature _____

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at Calcutta on the _____ *day of* _____ 18___.

Registered,

Port Officer of Calcutta.

NOTICE.

Candidates applying to be examined for Certificates of Competency are hereby informed that no remuneration or gratuity whatever, either directly or indirectly, can be received by any Officer, Messenger, or Servant of the Government, except the lawful fees stated in the Regulations, which are to be paid to the Port Officer when the Candidate makes his application.

Any Officer, Messenger, or Servant of the Government accepting any present or gratuity is liable to summary dismissal, and any Candidate so offering money will be subject to the penalty mentioned in para. 16 of the Regulations relating to the examination of Masters, or para. 35 of those relating to the examination of Engineers and Engine-drivers as the case may be.

Every case in which an applicant has paid, or pays hereafter, any fee or gratuity to any Officer, Messenger, or Servant, on any pretence whatever, other than the prescribed fees for examination, should be reported to the Local Government.

W. B. BESTIC,

Under-Secy. to the Govt. of Bengal.

P. W. (Marine) Dept.

REGULATIONS

RELATING TO THE

EXAMINATION OF MASTERS OF INLAND STEAM-VESSELS.

Preliminary.

UNDER the provisions of the Inland Steam-Vessels Act, 1884, no inland steam-vessel having engines of eighty nominal horse-power or upwards is allowed to proceed on any voyage unless her master possesses a first class master's certificate granted under the Act, or a master's certificate granted under Act I of 1859 (*for the amendment of the law relating to merchant seamen*), or the Merchant Shipping Acts, 1854 to 1883, or a certificate to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869; and no such ship having engines of under eighty nominal horse-power is allowed to proceed on any voyage unless her master possesses a second class master's certificate granted under the Act, or a certificate of the higher grade of the nature referred to above:

Provided that a steam-vessel having engines of under eighty nominal horse-power shall be deemed to have complied with the law if she has as her master and engineer a person possessing both a second class master's certificate and an engine-driver's certificate granted under the Act

Any person who having been engaged to serve as master of an inland steam-vessel proceeds on any voyage in that steam-vessel as master without being at the time entitled to and possessed of the certificate required under the Act, and any person who employs any person as such master without ascertaining that he is at the time entitled to, and possessed of, the certificate required under the Act, is liable to be punished with fine which may extend to *five hundred rupees*.

No. 27 Marine, dated Calcutta, the 31st January 1890.

NOTIFICATION—By the Govt. of Bengal, P. W. Dept.

UNDER the powers conferred upon him by section 29 of the Inland Steam-Vessels Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to masters of inland steam-vessels.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose arrangements have been made for holding examinations periodically at the port of Calcutta.

Examinations continued till all the candidates are examined.

2. The examinations will be held by the Port Officer and one or more other examiners to be appointed by the Government from time to time They will commence early in the forenoon, and will be continued from day to day until all the Candidates whose names appear upon the Port Officer's list on the day of examination are examined.

3. Candidates for examination must make their application upon the appropriate form (Exn. 2*b*), which must be filled up at the Port Office. The Exn. 2*b* properly filled in, together with the candidates' testimonials and discharges, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials of character, conduct, and ability required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges may have to be verified before the candidate can be examined, it is desirable that they should be handed in, together with the Forms Exn. 2*b*, as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners and of British Seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits; and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificates as to Age.

6. Should any doubt exist as to the age of a candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel. In the case of natives of India, who may not be able to speak English, their certificate shall be endorsed to the effect that they are valid only for vessels manned and officered entirely by Asiatics.

Colour Tests.

8. The Government have made the following arrangements for the examination of persons as to their ability to distinguish colours :—*

9. Examinations in Colour are open to any person serving or about to serve in the Mercantile Marine.

10. Any person, including the holders of Certificates of Competency, or persons about to apply for Certificates of Competency, if desirous of being examined *in Colours only*, must make application to the Port Officer on Form Exn. 2*a*, and pay a fee of one rupee.

11. He must on the appointed day attend for examination at the Examiner's Office; and if he passes he will receive a certificate to that effect.

12. If he fails it will be open to him to be examined again in Colours as often as he pleases on payment of the fee of one rupee at each fresh attempt.

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* *See* Apendix A.

13. The application of a *Candidate who is presenting himself for Examination for a Master's Certificate* must be made on Form Exn. 2*b*. Such examination will commence with the Colour test; and if the Candidate does not, at the time of making application, hold a Certificate of Competency of any grade, and should fail to distinguish correctly any one of the colours used in the test, he will not be allowed to proceed with the examination

14. The fee he has paid for Examination for a Certificate of Competency will include the fee for the Colour test, and, with the exception of one rupee, will in such event be returned to him.

15. A candidate for Examination for a Certificate of Competency who, at the time of making application, does not possess a Certificate, and who fails to pass the colour test, may not be re-examined until after the lapse of three months from the date of his first failure. If the fails a second time, he will be allowed a third trial at the expiration of another three months from the date of his second failure. A fresh fee must be paid at each succeeding examination.

16. It is therefore obviously to the advantage of Candidates for Certificates of Competency to apply in the first instance to be examined in *Colours only* on Form Exn. 2*a*.

17. A Candidate who holds a Certificate of Competency, and who, on presenting himself for Examination for a Certificate of a higher grade, is unable to pass the Colour test, will notwithstanding be permitted to proceed with the Examination for the Certificate of the higher grade.

18. Should he pass this examination, the following statement will be written on the face of the higher Certificate which may be granted to him, viz.—"This Officer has failed to pass the Examination in Colours."

19. Should be ultimately fail to pass the Examination, a like statement, relating to his being Colour blind, will be made by the Port Officer on his existing Certificate before it is returned to him.

20. Holders of Certificates which bear the statement of their having failed to pass in Colours, and who may desire to have the statement removed from their Certificates, must obtain the special permission of the Government.

Qualifications for Certificates of Competency as First Class Masters.

21. *Examination in Colours.*—All candidates for certificates of competency must first be examined in colours.*

22. A candidate for a certificate as first class master of inland steam-vessels must be not less than twenty-four years of age, and must have served as a second class master in charge of a steam-vessel for not less than three years, or he must be not less than twenty-two years of age, hold a certificate of competency as second mate granted under Act I of 1859 (for the amendment of the law relating to Merchant Seamen) or the Merchant Shipping Acts 1854 to 1883, or a certificate to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869, and have served as Mate of an inland steam vessel or master of a river flat for not less than one year.

23. Each candidate will be examined apart, and *vivâ voce*, in each and all of the following subjects:—

(1)—The rules of the road.
(2)—The management of river steamers under all contingencies.
(3)—The tide table.
(4)—Storm signals.
(5)—The provisions of Act VI of 1884, and the rules framed under sections 21, 29, 50 and 51 of the Act.

Qualifications for Certificates of Competency as Second Class Masters.

Examination in Colours.—All candidates for certificates of Competency must first be examined in colours.*

24. A candidate for a certificate as second class Master of an inland steam-vessel must not be less than twenty-one years of age and must produce satisfactory certificates of

* See Appendix A.

sobriety and intelligence, and that he has served three years as Mate of a small steam-vessel or as chief helmsman of a steam-vessel of over 80 horse power, and shall be examined *viva voce* as to his knowledge in the following subjects:—

(1)—The rules of the road.
(2)—The management of small river steamers.
(3)—Storm signals.

Failure.

Re-examination in case of failure.

25. If a candidate fails, he will not be re-examined *until after a lapse* of three months from the date of such failure.

Certificate of lower grade.

26. If a candidate has failed in his examination, but the subjects in which he has failed are not included in the subjects required for a certificate of a lower grade, he may, if he desires it, receive a certificate of such lower grade.

27. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled so to do, for re-examination for the higher grade of certificate he will be required to pay again the full fee.

Fees.

28. Candidates for examination, in making their application on Form Exn. 2*b*, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials as the case may be, they will be allowed to again present themselves for examination for a certificate of the same grade without paying any further fee.

Fees to be paid by applicants for examination.

29. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected and not allowed to be again examined for twelve months.

30. If a candidate fails in his examination, *no part of the fee will be returned to him.*

31. If the candidate satisfy the examiners as to his knowledge of the prescribed subjects, and generally as to his competency to command an inland river steamer, they shall certify the same to the Government, which will then grant a certificate to the candidate.

Form Exn. 16. Completion of examination.

32. The fees are as follows:—

	Rs.
First Class Master	16
Second Class Master	6
Renewal of a certificate	5

General.

33. Certificates of competency of first and second class masters shall be made and issued in the forms hereunto annexed.

34. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

INSTRUCTIONS TO EXAMINERS.

Examination in Colours.

Herewith are—

(*a*.) A lanthorn having in it a lamp in which kerosine is to be burnt.
(*b*.) A side having ground glass in it.

(*c.*) Nine slides, each having a coloured glass in it. The colours are as follows :—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1).
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

(*d.*) Cards, five of each as follow :—

1. White.
2. Black.
3. Red.
4. Pink.*
5. Green
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (Cards.)

In conducting the examination by daylight the examiner should do it in three ways :—

1. The cards should be mixed up. The examiner should then hold up each card separately and ask the candidate to name the colour, and if the candidate does so without hesitation he is to be regarded as having passed the daylight test.
2. If the candidate hesitates in any of his answers so as to raise a doubt in the mind of the examiner as to his ability to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap.
4. The result of the examination should be noted and recorded in each case.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn ; and, at least, 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked it it appears to him to have any colour, and if so what colour?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star* is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having "failed" if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c. ; or to name card No. 7 as red, green, or yellow ; or glass No. 2 as green, blue, or yellow ; or glass No. 5 as red, pink, salmon, &c. ; or glass No. 7 as bright red or bright green ; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black by daylight ; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown) the may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

FIRST CLASS MASTER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To

Mr. _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found, after examination, duly qualified to fulfil the duties of First-class Master of an Inland Steam-Vessel under Act VI of* 1884, *I do hereby grant you this CERTIFICATE OF COMPETENCY as such First-class Master.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

This _____ *day of* _____ 18____.

No. of Certificate

*Address of Owner*_____

*Date and Place of Birth*_____

*Signature*_____

Any master who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

*Issued at Calcutta on the*_____*day of*_____18____.

Registered,

Port Officer of Calcutta.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

SECOND CLASS MASTER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To

Mr. _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found, after examination, duly qualified to fulfil the duties of Second-class Master of an Inland Steam-Vessel under Act VI of* 1884, *I do hereby grant you this CERTIFICATE OF COMPETENCY as such Second-class Master.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

This _____ *day of* _____ 18—.

No. of Certificate

Bearer _____ *son of* _____ *by caste* _____

Date and Place of Birth, showing Village, Thana and District* _____

Residence, showing Village, Thana and District _____

Height _____

Personal description, stating particularly any permanent marks or scars _____

No. of Register Ticket _____

Signature _____

Any master who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

Issued at Calcutta on the _____ *day of* _____ 18____.

Registered,

Port Officer of Calcutta.

* If not known exactly must be stated on the best information or evidence.

REGULATIONS

RELATING TO THE

EXAMINATION OF ENGINEERS AND ENGINE-DRIVERS OF INLAND STEAM-VESSELS.

Preliminary.

UNDER the provisions of the Inland Steam-Vessels Act, an inland steam-vessel having engines of eighty nominal horse-power or upwards cannot proceed on any voyage unless her engineer possesses an engineer's certificate granted under the Act or the Indian Steam Ships Act, 1884, or the Merchant Shipping Acts, 1854 to 1883, or to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869; and no such ship having engines of under eighty nominal horse-power can proceed on any voyage unless she has as her engineer a person possessing an engine-driver's certificate granted under the Act or the Indian Steam-Ships Act, 1884, or a certificate of the higher grade of the nature referred to above: Provided that a steam-vessel having engines of under eighty nominal horse-power shall be deemed to have complied with the law if she has as her master and engineer a person possessing both a second class master's certificate and an engine-driver's certificate granted under the Act.

Any person who has been engaged to serve as Engineer or engine-driver of an inland steam-vessel proceeds on any voyage in that steam-vessel as engineer or engine-driver, as the case may be, without being at the time entitled to, and possessed of, the certificate required under the Act, and any person who employs any person as engineer or engine-driver without ascertaining that he is at the time entitled to, and possessed of, the certificate required under the Act, is liable to be punished with fine which may extend to *five hundred rupees*.

No. 28 Marine, dated Calcutta, the 31st of January 1890.

NOTIFICATION—By the Govt. of Bengal, P. W. Dept.

UNDER the powers conferred upon him by section 29 of the Inland Steam-Vessels Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to engineers and engine-drivers of inland steam-vessels.

Certificates of competency granted to persons who pass requisite examinations.

1. Certificates of competency will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed and arrangements have been made for holding the examinations periodically at the port of Calcutta.

Examinations continued till all the candidates are examined.

2. The examinations will commence early in the forenoon and will be continued from day to day until all the candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Application how to be made.

3. Candidates for examination must make their application upon Form Exn. 3, which must be filled up at the Port Office. The Exn. 3 properly filled in, together with the candidate's testimonials, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct for at least the 12 months immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. If the service has been on shore, the testimonial must be signed by an employer; if at sea, by either the master, managing owner, chief or superintending engineer.

5. As such testimonials and discharges may have to be verified before the candidates can be examined, it is

desirable that they should be handed in, together with the Form Exn. 3, as early as possible.

Testimonials of Foreigners.

6. The testimonials of servitude of Foreigners and of British Seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits; and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificate as to age.

7. Should any doubt exist as to the age of a candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

8. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel.

Verification of services, &c., by Articles.

9. Services which cannot be verified by proper entries in the articles of the ships in which the candidates have served cannot be counted.

Qualifications for Certificates of Competency as Engineers.

Qualification of candidate for Inland Engineer's Certificate.

10. A candidate must be not less than twenty-two years of age:—

(*a*) He must have served an apprenticeship to an engineer, of three years in England or five years in India, and must prove that during the period of his apprenticeship he has been employed on the making and repairing of engines. Or, if he has not served an apprenticeship, he must prove that for not less than three years in England or five years in India he has been employed as a journeyman or master-hand in some factory or workshop on the making or repairing of engines. In either case he must also have served two years thereafter in the engine room of a steamer of over 80 horse power, or as a certificated engine-driver in a steamer of less than 80 horse power.

Or failing the above service he must have served as a certificated engine-driver in charge of a steamer for not less than four years.

(*b*) He must be able to give a description of boilers, and the methods of staying them, together with the use and management of the different valves, cocks, pipes, and connections.

(*c*) He must understand how to correct defects from accident, decay, or other causes and the means of repairing such defects.

(*d*) He must understand the use of the barometer, thermometer, and salinometer, and the principles on which they are constructed.

(*e*) He must state the causes, effects, and usual remedies for incrustation and corrosion.

(*f*) He must be able to state how a temporary or permanent repair could be effected in case of derangement of a part of the machinery, or total breakdown.

(*g*) He must write a legible hand, and understand the first five rules of arithmetic, and decimals, and their application to questions about consumption of stores, and full capacities of tanks and bunkers, the duty of pumps, and the direct strains in engines and boilers.

(*h*) He must be able to pass a creditable examination as to the various constructions of paddle and screw engines in general use; as to the details of the different working parts, external and internal, and the use of each part.

Qualifications for Certificates of Competency as Engine-drivers.

11. Candidates for examination must make their application upon the appropriate Form (Exn. 3*b*), which must be filled up at the Port Office.

12. A candidate for a certificate of competency as engine-driver must have attained the age of twenty-two years.

He must have served an apprenticeship of at least four years if in India or three years in the United Kingdom, and have served as assistant engineer for one year on a steamer of not less than 80 horse power.

Or he must have been three years principal serang or tindal in the engine-room of a steamer, or have been for three years in charge of the engine of a factory or mill under a European manager or engineer, as well as one year principal serang or tindal or assistant engineer in the engine-room of a steamer under a certificated engineer.

13. He must have the testimonial shown in Appendix B filled up by the engineer with whom he has last served, or his other testimonials must contain all the particulars therein required.

14. He must pass a *viva voce* examination before the Board of Examiners as to the working of an engine and the use of its different parts.

15. He must be able, if required, to show his practical qualifications by one week's trial in a steamer after fulfilling the other tests to which he will be subjected.

General Rules as to Examinations.

16. All books necessary for the use of candidates under examination will be provided by the Government, and applicants will not be permitted to take into the examination room any book, paper, document, or memoranda of any description whatever; and, subject to the provisions referred to hereafter, they will also not be allowed to work out their problems on a slate or on waste paper

Candidates not to take books, &c., into examination room.

17. Candidates will be allowed in the time allotted to cancel any part of their work, and when required additional papers will be supplied by the Examiners. These additional sheets must be attached to, and form part of, the examination papers.

18. In the event of any candidate being discovered copying from another, or affording any assistance or giving any information to another, or communicating in any way with another during the time of examination, he will be regarded as having failed in his examination, and will be turned back for three months, in the same manner as if he had failed in the practical part of the examination; and no part of the fees he may have paid for examination will be returned to him.

Punishment for breaking rules.

19. If a candidate leaves the room before answering any question which has been given to him, he cannot afterwards be permitted to answer it, but the examiners may substitute other data or another question.

Leaving examination room.

20. All applicants presenting themselves for examination for certificates of competency as engineers will be required to give written answers to eight out of a list of ten questions selected from Form Exn. 15*a*,* "Elementary Questions for the first examinations of Engineers for certificates of competency." These questions are intended to furnish a record to some extent of the candidate's knowledge at the time of his examination, and also to induce the candidates to pay more attention to their handwriting and spelling.

Questions from Form Exn. 15*a*.

21. The Form Exn. 15*b*., on which these answers will be written, contains also some questions as to the experience of the applicant, to be answered by him in writing.

22. Examiners may add to their *viva voce* questions on the practical management of steam engines and boilers any of those contained in Exn. 15*a*.

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* *See* Appendix A.

23. If at the expiration of the time allowed the candidate has worked out correctly the whole of the questions set to him, and given satisfactory answers in the *vivâ voce* examination, he will be declared to have passed.

24. If at the expiration of the time allowed he has not worked out the whole of the questions set to him, but if the result of the *vivâ voce* examination taken in connection with the answers to such of the questions as he has worked out is sufficient to satisfy the Examiner that the applicant is competent to take charge of engines, he will be declared to have passed.

25. In other cases he will be declared to have failed.

(Exn. 15) 26. A report of the examination, and the examination papers, will be forwarded to the Government on the Form (Exn. 15).

Notification of having passed will be given to successful candidates. (Exn 16) 27. If the candidate passes, he will receive the Form Exn. 16, upon which the Government will issue the certificate to the candidate, whose testimonials, &c., will be returned at the same time. It is therefore important that the port of destination of the certificate should be the same on both the Form Exn. 16 and the Form Exn. 2. If circumstances should make any alteration necessary, the examiners should see that it is made in both forms, otherwise delay in the issue of the certificate may be caused.

Fees.

Fees to be paid by applicants for examination. 28. Candidates for examination, in making their application on Form Exn. 3 or Exn. 3*b*, will be required to pay the examination fees before any step is taken, whether by inquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them, but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be.

29. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

30. If a candidate fails in his examinations, *no part of the fee he has paid will be returned to him.*

31. The fees are as follow :—

	Rs.
Engineers	12
Engine drivers	10
Renewal of a certificate	5

Failure.

32. If the applicant fails in the *vivâ voce* or practical part of the examination, he may not present himself for re-examination until he can produce proofs of THREE MONTHS' further service afloat. If he fails in arithmetic or drawing only, he may come up again at any time. Engine-drivers may be examined *de novo* after six months, if the past examination showed that they might reasonably be expected to qualify.

General.

33. Certificates of competency of engineers and engine-driver shall be made out and issued in the forms hereunto annexed.

34. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

Form Exn. 15a.

ELEMENTARY QUESTIONS FOR THE FIRST EXAMINATIONS OF ENGINEERS FOR CERTIFICATES OF COMPETENCY.

To Engineer Examiners.

Examiners will require all candidates to fill up a form, Exn. 15*b*., of which a copy is enclosed, and they will forward the same to the Government along with the report of the examination.

The arithmetical questions for Engineers and the *vivâ voce* examinations for all candidates will be continued as heretofore, and failure in the elementary questions will be treated as failure in arithmetic.

The numbers of the questions for each examination will be selected by the examiners, and they are not to be communicated to the candidate until his examination commences.

Exn. 15b.

Port	Class for which examined
Date	Candidate's name

A. Where and how long did you serve in works at the making or at the repairing of Engines, and in what capacities ?

B. How long have you served as fireman or trimmer ?

C. How long have you served in the Engine-room at sea, and in what capacities ?

D. With what descriptions of Engines have you served at sea—Paddle or Screw or both, Jet Condensing, Surface Condensing, or Non-condensing Engines, Compounds, Trunks, Inverted Cylinders, or Horizontal Engines ? What size were the Engines ?

E. With what descriptions of Boilers have you served at sea—Rectangular or Cylindrical, Wet-bottomed or Dry-bottomed, Multitubular, Sectional or Flue Boilers ?

F. What Engine defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

G. What Boiler defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

For the questions to be answered on the following pages, *See* the book of Elementary Questions. The questions need not be written: only the answers to them.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

ELEMENTARY QUESTIONS.

1.

What parts of an engine are generally made of wrought-iron?

2.

What parts of an engine are generally made of cast-iron?

3.

For what parts of an engine is steel sometimes used?

4.

What parts of an engine are generally made of brass or gun-metal?

5.

Where is "white metal" sometimes used? On account of what property possessed by it is it adopted? What objection is there to its more general use?

6.

For what parts is Muntz metal sometimes used? Is it malleable? For what properties is it valued?

7.

What difference is there in the composition of cast-iron, of wrought-iron, and of steel?

8.

How can cast-iron, wrought-iron, and steel be distinguished from each other?

9.

What are the different properties of cast-iron, of wrought-iron, and of steel.

10.

What is meant by the terms "breaking stress," "proof stress," "safe-working stress"?

11.

What is the cohesive strength or breaking stress of good ordinary wrought-iron?

12.

Tempering steel: how is it done, and in what order do the colours come?

13.

What is case-hardening?

14.

Which of the common metals or alloys can be forged, and which of them are brittle or "short"?

15.

What is meant by "welding"? Which of the common metals can be welded?

16.

The expansion of metals by heat: give examples of this in the engine and in the boiler.

17.

In the construction of cylindrical marine boilers, for what parts have the plates to be worked hot? When the material is steel, what precautionary treatment of these plates is afterwards necessary?

18.

What is double riveting? In what parts of cylindrical marine boilers is double riveting employed? In which of the shell seams is it most necessary?

19.

What is "caulking," and how are seams prepared for caulking?

20.

Describe the different ways of fastening the ends of the main stays of a boiler. What are the merits of, or objections to, the different plans?

21.

What strain per square inch is allowed on boiler stays?

22.

Describe a riveted stay, and state where such stays are commonly used.

23.

Where are thin plates to be looked for in a boiler as it wears, and how is the thinness to be detected?

24.

How are boiler tubes fixed? What are "stay tubes," and how are they secured?

25.

Where is it generally that boiler tubes leak? How is this defect repaired? What are the causes of this leaking?

26.

What are the causes of cracked tube plates? Where are the cracks situated? How are they repaired?

27.

What is the difference between a "dry uptake" and a "wet uptake"? Which requires most repair? Why? Where have you seen a wet uptake?

28.

What is a superheater? What is its construction? What valves are on it? There is sometimes a gauge glass on it; what is that for?

29.

What parts of a marine tubular boiler are first injured by shortness of water?

30.

Where are angle irons sometimes used in the construction of a boiler, and where are flanged plates used?

31.

Priming: to what causes is it attributed? What means are applied to prevent it? What evils may be produced by it?

32.

Funnel draught: what makes it? What checks it?

33.

Flame is sometimes seen at the top of the funnel: what causes this appearance? Is it beneficial or is it detrimental? Why so?

34.

A blast pipe: what is its construction? Where is it placed? For what is it used?

35.

How many bottom blow-off cocks are generally fitted to each boiler, and why are they so fitted?

36.

Blow-off cocks are sometimes fitted with a spanner guard: for what purpose is this? Describe how the guard is formed?

37.

Test cocks or water-gauge cocks: where are they placed? At what heights? Must the cocks themselves be at those heights? What provision is made for cleaning these cocks? Should they ever become choked? When there are no test cocks, how is the height of the water ascertained?

38.

What is a dead-weight safety valve? Of what are the rubbing surfaces formed? How is a lock-up valve arranged to admit of lifting it or of turning it round, and to prevent adding to the weight?

39.

About what area of safety valve is now required by the Board of Trade? What area was formerly required, and on what ground has that been altered? What is the effect of suddenly opening a safety valve when steam is up? To about what extent do safety valves rise when blowing off without being eased by hand?

40.

Spring-loaded safety valves: what advantages have they that are not possessed by dead-weight valves? What are the disadvantages as compared with dead-weight valves?

41.

Of what pieces does a glass water gauge mounting consist? How does it act? Where is it placed? At what height? Is it liable to derangement? How is its working tested?

42.

Glass water gauges have sometimes pipe connections top and bottom: what is the object of this arrangement? Should there be cocks at the extremities of these pipes?

43.

Describe a Bourdon's steam gauge. Some gauges have an inverted syphon pipe below them: what is its use?

44.

Why is a small cock sometimes put on the pipe leading to a steam gauge? Where should it be placed, and what error might be made by omitting to use it?

45.

Do steam gauges indicate the total pressure of the steam, or only a portion of that pressure? What is the pressure measured from?

46.

What is meant by the salting of the boiler? How is this prevented? What is the density of ordinary sea water? How is the density ascertained? What is the difference between the formation of scale and the salting of the boiler? What is the maximum density at which boilers should be worked at sea?

47.

Scum cocks and pipes: how are they arranged? Where are they placed? At what height in the boiler? When are they used? When must they be shut? Neglect of these cocks lead to what dangers?

48.

Scale: of what does it consist? Where is it most objectionable? How is it removed? How is its formation prevented? What evil effects are produced by it?

49.

What is a salinometer? Of what does it consist? How does it act? How is it graduated? Can it be used at any temperature indiscriminately?

50.

What harm may be done through the check valve of one of a set of boilers being defective while under way? How would you work to avoid this harm?

51.

How is the leak from a split tube stopped in a boiler at sea? Describe the operation.

52.

What is the use of dampers? Where are they fitted? When should they be used?

53.

When there are no dampers fitted, what is used instead? What evil to the boiler is sometimes attributed to this? When the heating surfaces are clean does this occur?

54.

Describe the piston of a steam cylinder, with its different rings and their uses. There are generally round pieces let in flush on one side of a piston: what are they? How are these pieces fixed?

55.

Cylinder drain cocks: what is their use? There is sometimes a valve upon each cock: what purpose does it serve?

56.

Cylinder escape valves: of what do they consist? How protected? How regulated? When are they most needed? To what danger do they expose the Engineer? What precaution is sometimes used to obviate this danger?

57.

What is a compound engine? What different kinds are there for screw steamers, in respect to the number and arrangement of their cranks and cylinders? What is a triple expansion engine?

58.

What is link motion? What are some of its advantages? In modern engines for the screw propeller when there is no link motion, what takes its place?

59.

What is a separate expansion valve? Why is it not fitted to all engines? What effect has an expansion valve upon the starting and upon the reversing of the engine?

60.

What arrangement is applied to reduce the friction of a slide valve? To what is the friction due?

61.

Describe a loose eccentric; how does it act? In what engines is the loose eccentric still employed?

62.

What is the travel of the eccentric rod? How is it measured on the eccentric? What is the travel of the slide valve when the link motion is in mid gear and the engine still moving?

63.

What are "double beat valves"? Why are they not generally used for safety valves? Are they ever used instead of the slide valve? What objections are there to their use?

64.

What is a circulating pump? Is it always worked by the main engine? Give an example from your last steamer of the three water temperatures generally noted by careful engineers.

65.

An air valve is sometimes fitted to a circulating reciprocating pump: what purpose does it serve?

66.

What is the difference between a bucket air-pump, a piston air-pump, and a plunger air-pump?

67.

Whether are double-acting air-pumps made with plungers, with pistons, or with buckets?

68.

What is an air-pump trunk? When is it necessary? How is it attached to the bucket?

69.

What class of air-pump requires both foot and delivery valves, and in what other class can either of these valves be in some cases dispensed with?

70.

When under way, when the air-pump bucket is at the top of its stroke, at what height is the water in the condenser?

71.

With a surface condensor and a single acting air-pump, what is the effect of a leaky foot valve, and what is the effect of a leaky bucket when there is also a foot valve?

72.

Air-pump pet cock or valve: where is it placed? How does it act? What is its object? Does it in every case reduce the effective capacity of the pump? Is it equally applicable to double acting pumps?

73.

At what temperature is the hot well worked? What is the effect of higher temperatures? What is the effect of lower temperatures? What limits the lowness of temperature? Has a very low temperature any disadvantages?

74.

Bilge injection with common condensers: what are the fittings required? When is it used? What precautions are necessary in using it?

75.

When surface condensers are used, what takes the place of the bilge injection? To what is the connection made? How is its valve formed? Why is this necessary?

76.

What are the practical guides to the proper amount of opening of the inlet valve for the circulating pump?

77.

Feed-pump pet cock or valve: where is it placed? What is its use? How does it act? Is it always a necessary fitting?

78.

What are some of the ways of fastening the ends of surface-condenser tubes? About what size and about what thickness are condenser tubes? What parts of a surface condenser are made of brass?

79.

What is a blow-through valve or cock? To what is it attached? There is sometimes a valve that when opened admits steam from the slide valve casing to the exhaust port: what is its use? To which cylinder is it fitted?

80.

What is a snifting valve? What is its use? Where is it placed? Can it be placed too high? Can it be placed too low? At what height should it be placed? Was there one in your last steamer; if so, where was it? Why are snifting valves generally omitted now?

81.

What connections are generally fitted to the donkey-pump, and to what services can it be applied?

82.

When the engines are stopped with steam up, what are to be shut and what are to be opened?

83.

How is an engine heated up before starting? What precautionary examinations are made before starting?

84.

What is an interceptor or catch-water? Where is it fixed; what is its construction; how does it act; and what attention does it require?

85.

Describe an air-pump bucket, with its valve or valves and its packing. Of what are the valves generally made?

86.

Of what materials are air-pump rods made? Why so?

87.

What is the racing of the engine? When does it occur? What danger attaches to it? What is done to prevent it?

88.

What are marine governors? What is their general construction? How do they act?

89.

What is meant by the "pitch" of a screw propeller? How is it measured?

90.

Explain the difference between a "right hand" and a "left hand" propeller, and state how each of them revolves.

91.

What is the slip of a screw propeller? How is its amount expressed in figures?

92.

Which of the valves about engines and boilers have to be worked by hand, which of them work self-actingly, and which are worked by the motion of the engine?

93.

Why is soda sometimes put into a boiler, and how is it put in which under way? What is the kind of soda used?

94.

Tallow cups for cylinders were sometimes made with two small cocks, or with only one small cock, or with one large hollow plug cock, or with one small cock and a valve; which of these is suitable for a high-pressure cylinder, and which for the cylinder of a condensing engine? Describe how the cup with only one small cock is used. What is now generally used instead of these? How has this change come about?

95.

Does a cylinder escape valve, self-acting, allow all the water to escape; if not, how much is left in the cylinder?

96.

What is a "Steam Lubricator" (sometimes called an Impermeator)? Explain its action; to what part of the engine is it connected; whether will throwing cold water over it make it work faster or slower? Describe the one used in your last steamer?

97.

A common paddle wheel: of what is the centre made? Of what are the arms formed? What is the form of the bolts which attach the floats to the arms? How are the arms attached to the centres?

98.

Why have some paddle wheels one or more cast-iron floats in each wheel? With what engines are these most required? At what part of the circumference are they placed?

are paddle wheel floats sometimes made of different breadths in the same wheel? With what description of engine is this most needed? Where are the broad floats placed, and where are the narrow floats placed in the circumference of the wheel?

100.

What difference is there between a radial paddle wheel and one with feathering floats? What is the object of feathering floats? Are all the eccentric rods attached in the same way, and are they all of the same form?

101.

Whereabout is the centre of the eccentric of a paddle wheel with feathering floats placed? In that case are the feathering levers on the striking face or on the back of the float? When the paddle shaft has an outer bearing, how is the eccentric made?

102.

Of what materials are the working surfaces of a paddle wheel with feathering floats? Are they all lubricated? With what?

103.

What is a "Disconnecting Paddle Engine"? At what place is the disconnecting effected? How is it accomplished? In which of the cranks of a disconnecting engine are the crank pins fixed?

104.

Whether is link motion valve gear or the loose eccentric generally used for disconnecting paddle engines? For what steamers are disconnecting paddle engines frequently employed?

105.

What are expansion joints? Where are they necessary? What attention do they require? Of what should the working surfaces be made?

106.

What omission in the construction of expansion joints may lead to a serious accident when steam is first applied? How is this prevented in the construction of a steam trunion pipe for an oscillating engine?

107.

Describe an oil cup with a syphon worsted. How is the worsted arranged? How is it cleaned? How far down the tube does it extend?

108.

Describe a thrust bearing; which of the surfaces wears? Why are there sometimes a number of oil tubes for one thrust bearing?

109.

What parts of a screw shaft are generally covered with brass? Why is this necessary? About what thickness is the brass?

110.

What is the stern tube or screw shaft pipe? Why is a pipe of such a length required? Of what is it made? How is it fixed at each end?

111.

What is a lignum vitæ bearing? How is the wood fitted? Where is such a bearing generally used?

112.

How is a screw propeller fixed on the shaft? What means are used to prevent its getting loose at sea?

113.

Where are sluice valves placed? What large sluice valve is there in almost all screw steamers? From what position should this valve be worked? Why so? What attention should it receive?

114.

With a condensing engine; what valves or cocks are on the skin of the ship in the engine-room and in the stokehole?

115.

What are the necessary fittings of a marine boiler?

116.

With a surface condensing engine what cocks or valves are open some time before the engine is started so as to be ready for starting whenever the order is given?

117.

What is a steam jacket? What cocks are on it? In what engines are jackets most generally used? Do they require to be felted?

118.

What parts of an engine or its fittings should be felted or otherwise protected from radiation?

119.

What are the small cylinders sometimes fitted on the slide valve casing cover of vertical engines? Explain their action. To what are they connected by a pipe? Why so?

120.

Name the principal pipes in connection with the engines and boilers of a steamer, and state to what the ends of these pipes are connected.

121.

Through what cocks or valves, pipes and chambers does the water pass on its way from the sea inlet rose plate to the water space of the boiler, with a jet condenser?

122.

Through what cocks or valves, pipes and chambers does the circulating water of a surface condenser pass?

123.

Through what cocks or valves, pipes and chambers does the steam pass from the boiler until it is in the form of water in the hot well?

124.

Name the pieces of the engine through which the pressure of the steam is transmitted from the piston to the screw propeller. Name them in the order in which they act.

125.

What is an air vessel? How does it act? At what parts of an engine or of its fittings are air vessels generally applied?

126.

What is the construction of a mud box? Where should mud boxes be placed? Why are they necessary? How should the space be divided by the rose plate, and why?

127.

What is a trunk engine? When used in a horizontal engine for a right-hand screw propeller at which side of the vessel should the cylinders be placed? Why so?

128.

What is an oscillating engine? For what steamers are oscillating engines generally adopted? Why? How is the steam conveyed to and from the slide valve casing?

129.

Of what parts does the valve motion gear of an oscillating engine consist?

130.

For what have geared engines sometimes been used? Of what were the cogs of the large wheel made?

131.

At what part of a screw steamer is the pressure that propels it applied to the hull?

132.

At what part of a paddle steamer is the pressure that propels it applied to the hull?

133.

About how much fuel per indicated horse power per hour is required by modern steam engines, common, compound and triple expansion?

134.

What is the explanation of the economy of the surface condenser?

135.

What is the construction of a surface condenser? Of what are its tubes made? How are they fixed? How are they kept tight? What is done with a split tube?

136.

Where do surface condensers foul? How are they cleaned?

137.

What non-conducting substances are employed to prevent radiation, and how are they applied?

138.

In the construction of smoke-box doors and of dry uptakes, what provision is made to lessen the amount of radiation?

139.

How can the formation of black smoke be prevented? Describe smoke preventing apparatus.

140.

What is meant by "circulation" in a boiler, and what are the results of defective circulation?

141.

What means are sometimes adopted to improve the circulation in a boiler?

142.

By what arrangement is the circulation promoted in a "hay-stack" boiler?

143.

Describe a ship's side air-pump discharge valve, in what respects does it sometimes differ from a common stop valve, and what attention does it require?

144.

What is the construction of a feed escape valve, to what is its discharge connected, and how is its loading regulated?

145.

When there is no feed escape valve, what is the arrangement of the feed valves or cocks?

146.

What is the measure of a horse-power? How is indicated horse power ascertained?

147.

Has "nominal horse power" a fixed meaning? What is the use of this expression? What is generally taken as the measure of one horse power nominal?

148.

What is "back pressure" in a cylinder? About how much is it in each of the cylinders in your last steamer? Is excessive cushioning ever a trouble under certain conditions in modern engines? Say when and why and in which cylinder this occurs.

149.

What is meant by "speed of piston"? About how much is the speed of piston in modern marine engines?

150.

What is "atmospheric pressure"? What is its average amount? What instrument tells this amount?

151.

What is "gross pressure" or "absolute pressure"? What pressure is it that is shown by the steam gauge?

152.

What is meant by "cutting off" steam? How is it done? What part of the valve regulates the cut off?

153.

What is a piston slide valve? Describe its construction. Why are such frequently employed in place of the common slide valve? What is a great drawback to the use of these valves?

154.

What fixes the time of closing the exhaust? After the exhaust is closed and before the port opens for steam, what becomes of the steam that is in the cylinder?

155.

What is the "lead" of the valve? What is its object? About what amount is it?

156.

What is the "cover" or "lap" of the valve? What is its object? About what proportion of the stroke of the valve is it made?

157.

What is the "exhaust cover" of a slide valve? What is its effect upon cushioning and upon exhaust?

158.

What is "minus cover" or "minus lap" on the exhaust? What is its effect upon the exhaust and upon cushioning?

159.

What is "cushioning" or "compression" in a steam cylinder? How is it affected by the amount of cover or of minus cover there may be upon the exhaust? How is it affected by the exhaust pressure?

160.

What is "mean effective pressure"? How is its amount ascertained?

161.

What is a dial vacuum gauge? What is its construction? For what is it used? About what amount should it show when the engine is working all right? What effect has the variations it indicates on the performance of the engine?

162.

Does the vacuum gauge enable you to tell what pressure there is in the condenser, or must you have recourse also to the barometer to arrive at that? How would you ascertain the actual amount of back pressure there is in the condenser?

163

What is a barometer? What is its construction? Is a barometer sometimes used instead of a vacuum gauge? In what respect does the weather barometer differ from the vacuum gauge barometer?

164.

The common vacuum gauge and the common steam gauge, in which of them are the graduations marked from atmospheric pressure? Does either of them tell what is the true actual pressure in the boiler or in the condenser?

165.

Do steam and vacuum gauges vary with the variations of the weather barometer? When the weather barometer varies from 29 to 31, how much will the vacuum gauge vary, and how will that affect the working of the engine? Why so?

166.

Vacuum is generally stated as so many inches. What is meant by, say, 20 inches vacuum? What does that tell us about the absolute pressure of the vapour then in the condenser?

167.

From what depth will a pump draw water? Is there any limit? Why?

168.

What is vacuum? Can vacuum move a piston? When the temperature of the water in the condenser is 212°, what is the greatest degree of vacuum there can then be in the condenser?

169.

What is a thermometer, its construction? What is the property of matter that is the principle of its construction? What temperatures are regularly noted by careful engineers?

170.

What is the temperature of (1) melting ice, (2) of boiling water, (3) of steam about 60 lbs. pressure by the steam gauge, (4) of steam about 100 lbs, and (5) of strain about 150 lbs, also (6) of smoke in the funnel, and (7) of water in the hot well?

171.

What is meant by the "conduction" of heat? Give examples of it in the boiler and in the engine.

172.

What is meant by the "convection" of heat? Give examples of it in the boiler and in the engine.

173.

What is meant by "radiation" of heat? Give examples of it in the boiler and in the engine.

174.

Which is convection, which is radiation, and which is conduction in the following cases: (1) Heat from the glowing fuel to the furnace crown. (2) Heat passing from one side of the furnace crown plate to the other. (3) Heat passing from the steam pipes in the engine-room. (4) The heat of evaporation?

175.

What are the effective heating surfaces of a marine boiler? What is an objection to vertical heating surfaces?

176.

What parts of a marine engine are exposed to danger when the temperature is below freezing point?

177.

What precautions are necessary in cold climates when the temperature is below freezing point ?

178.

State as many ways as you can by which a boiler might not get its full feed; that is, a boiler, or one of a set of boilers, get short of water, although the feed valve is open its proper amount; to what causes might this be due ?

179.

Of what are furnace bars generally made ? About what thickness are they at top ? About what space is between them ? Whether are the bars put further apart for Newcastle coal or for Welsh coal ?

180.

Which burns faster, Newcastle coal or Welsh coal ? Which is the flaming coal ? Which makes most smoke ?

181.

About how many tons of steam coal will be burnt per day in our furnaces, each 3′ 0″ wide, and of about the usual length ? On what grounds do you say so ?

182.

About how many tons of steam coal will be burnt per day with good compound engines to drive an ordinary steamer of 40 ft. beam 10 knots an hour by steam alone ? On what grounds do you say so ? What percentage more coal would be required to propel the same steamer one knot faster ?

183.

About how many tons of steam coal will be burnt per day with a good compound engine, surface condensers, the low pressure cylinder 70 inches diameter, doing average work ? On what grounds do you say so ?

184.

A pair of inverted cylinder direct acting engines, there is a liner half an inch thick between the ahead eccentric rod and the eccentric strap, in overhauling the engine this piece is lost and forgotten ; what difference will its omission make in the working of the engine, on the admission, on the cut off, and on the exhaust of the steam ? Which will take place earlier, and which later, distinguishing between the up stroke and the down stroke ?

185.

A pair of inverted cylinder direct acting engines driving a right-hand screw ; on which of the crosshead guide bars is the pressure greatest in the up stroke, and on which in the down stroke ?

186.

A screw propeller is getting loose, it has a little play on the shaft, sideways on the key or feather ; how will this show in the engine-room ?

187.

How would you prove whether the centre line of the trunions of an oscillating cylinder be fair with the centre line of the main shaft ?

188.

How can the fairness of a line of screw shafting be tested without lifting the shafts ?

APPENDIX B.

TESTIMONIAL.

I hereby certify that has served with me in the engine-room of as principal serang or tindal for a period of , during which time he has discharged his duties to my entire satisfaction

I consider that he fully understands the working of an engine, and has sufficient tact, presence of mind, and energy to look after and manage the working of the engines of a river steamer having engines not exceeding 80 *nominal horse-power.*

Date (*Signed.*)

No. and description of Certificate.

ANY Engineer giving a testimonial in this form should be very careful in doing so, as the document may materially influence the applican 's olligibility as a candidate.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

ENGINEER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To _____

Whereas *it has been reported to the Lieutenant-Governor of Bengal that you have been found duly qualified to fulfil the duties of Engineer of an Inland Steam-Vessel, I do hereby, in pursuance of Act VI of* 1884, *grant you this* ***CERTIFICATE OF COMPETENCY.***

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

This _____ 18____.

No. of Certificate of Competency

*Bearer*_____

*Date and Place of Birth*_____

*No. of Register Ticket*_____

*Signature*_____

Any ENGINEER who fails to deliver up a Certificate which has been cancelled or suspended, is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

*Issued at Calcutta on the*_____ *day of*_____ 18____.

Registered,

Port Officer of Calcutta.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Benga

Certificate of Competency

AS

ENGINE-DRIVER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To _____

Whereas *it has been reported to the Lieutenant-G* *Bengal that you have been found duly qualified to fulfil the duties of Engine-Driver on an Inland Steam-Vessel having engines of under* 80 *nominal horse-power, I do hereby, in pursuance of Act VI of* 1884, *grant you this CERTIFICATE OF COMPETENCY as Engine-Driver.*

Given *under my* Hand and Seal

By order of the Government of Bengal,

This _____ *day of* _____ _____ 18___. *Under-Secy. to the Govt. of Bengal.*

No. of Certificate

*Bearer*_____ *son of*_____ *by caste*_____

Date and Place of Birth showing Village, Thana and District*_____

*Residence showing Village, Thana and District*_____

*Height*_____

*Personal description, stating particularly any permanent marks or scars*_____

*No. of Register Ticket*_____

*Signature*_____

*Issued at Calcutta on the*_____ *day of*_____ 18____.

Any Engine-Driver who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

Registered,

Port Officer of Calcutta.

* If not known exactly must be stated on the best information or evidence.

APPENDIX TO

The Calcutta Gazette

WEDNESDAY, FEBRUARY 12, 1890.

[Second Publication.]

PUBLIC WORKS DEPARTMENT,—MARINE.

NOTIFICATION.

No. 23 Marine, dated Calcutta, the 30th January 1890.

UNDER the powers conferred upon him by section 36 of the Indian Steam-ships Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to Engineers of sea-going steam-ships.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates of competency granted to persons who pass requisite examinations.

1. Certificates of competency will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose Examiners have been appointed, and arrangements have been made for holding the examinations periodically at the Port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint

Examinations continued till all the candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the candidates who have then presented themselves and whose names appear upon the Port Officer's list on the day of examination are examined.

Application how to be made.

3. The application for examination is to be made on Form Exn. 3, which must be filled up at the Port Office. The Form Exn. 3 properly filled in, together with the Candidate's Indentures of Apprenticeship, testimonials, and discharges, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials required.

4. Applicants will be required to produce, in addition to the usual Forms of Discharge, satisfactory testimonials as to sobriety, experience, ability, and general good conduct for at least the 12 months immediately preceding the date of application to be examined, and without producing them no person will be examined. If the service has been on shore, the testimonial must be signed by an Employer; if at sea, by the Master and Chief Engineer.

5. In cases where a testimonial from the Chief Engineer, or from the Master, is for any sufficient reason not obtainable, one may be submitted from the Superintending Engineer in place of that of the Chief Engineer, and one from the Managing Owner or Secretary or Chairman of a large Company in place of that of the Master, but in every such instance the testimonial must declare that the facts stated are in accordance with the reports made by the Chief Engineer or the Master, as the case may be, or else that the facts are within the writer's personal knowledge.

6. As such testimonials may have to be verified before the Candidate can be examined, it is desirable that they should be handed in, together with the Form Exn. 3, as early as possible.

Testimonials of Foreigners

7. The testimonials of servitude of Foreigners and of British Seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits: and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificate as to age.

8. Should any doubt exist as to the age of a Candidate, he will be required to produce a Certificate of Birth or Baptism.

Foreigners to know English.

9. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel.

Verification of services, &c., by Articles.

10. Services which cannot be verified by proper entries in the Articles of the Ships in which the Candidates have served cannot be counted.

Service on a lake or river.

11. In addition to the required workshop time, service on a lake or river, in a steamer in which the aggregate piston area of the propelling engines proper amounts to at least 2,000 (two thousand) circular inches will be accepted towards qualifying a candidate to be examined for a certificate of competency as follows:—

Two months of river or lake service, in a capacity not lower than that of Third Engineer, may be deemed equivalent to one month of sea service, provided that,

For a Second Class Certificate, not less than three months of the qualifying service must be actual sea service, and that,

For a First Class Certificate, at least six months of the qualifying service must have been at sea in a grade not below that of Third Engineer, where an engineer of a lower grade is carried. During the last 18 months of this service the candidate must have been in possession of a Second Class Engineer's Certificate of competency.

Assistant Engineer.

12. Service entered upon a ship's Articles as having been performed in the capacity of Assistant Engineer must be supported by proof of the Candidate having acted as Second, Third, or Fourth Engineer, as the case may be.

Service in home or coasting trade.

13. The service required by the Regulations to qualify a candidate for examination is to be regarded as referring to service in the Foreign Trade only. Service in the Home or Coasting Trade must amount to at least half as much again as that required by the Regulations to make up for the time spent in Port, *e.g.*, for every twelve months' service under the Regulations, eighteen months' service in the Home or Coasting Trade will be required. In all cases the length of service is deemed to commence on the date of signing of the articles of agreement, and to end on the date of discharge.

Service as Engineer only accepted as qualifying service.

14. Service in the engine-room (afterwards referred to) for qualifying a candidate to be examined for a Second-class Engineer's Certificate must be only in those capacities which afford opportunities of obtaining practical experience as an engineer; and service in the capacity of fireman, stoker, donkeyman, greaser, winchman, labourer, engineer's steward, or any other capacity than that of engineer taking watch on engines and boilers for propelling will not be accepted

Service as Third and Fourth Engineers

15. Service as Third and Fourth Engineer in Foreign-going steamers, where more than three or four engineers, as the case may be, are carried, their names being all entered on the Articles in their respective ratings, may be accepted equally with service as Second Engineer to qualify a Candidate for examination for a First-class Engineer's Certificate, provided he has, during the whole of such service, been in possession of a Second class Engineer's Certificate (Imperial, or under Order in Council), and provided also that he was regularly in charge of a watch. In the case of Fourth Engineers, however, eighteen months of such service must be proved for every twelve months required by the Regulations.

16. Service in a capacity below that of Fourth Engineer cannot be accepted as qualifying for any class of certificate unless the testimonials of the candidate explicitly certify that during such service he has been taking regular watch in the engine-room, and that the Chief Engineer or Superintending Engineer considers him properly qualified by that experience to act as Chief Engineer of a Foreign-going steamer of 99 horse-power nominal. *In any case the applicant must prove that he has had the responsible charge of the engines or boilers on regular watch for at least twelve months of sea service, of which for not less than six months he must have been in charge of the propelling engines and rated on the articles not lower than Fourth Engineer.* Service below the grade of Fourth Engineer.

17. Having "responsible charge" will be understood to imply, in regard to the engines, that the applicant, for the time specified, was, on regular watch, the person responsible for carrying out the orders of the engine-room telegraph, and, in regard to the boilers, that he was, similarly for the period specified, the person responsible for regulating the feeds.

18. When the workshop service has been performed in a place *where steam-engines are not made*, and the class of work done is similar to that required in engine-making, the service may be accepted with an additional year in the engine-room; that is, three years' workshop service and two years in the engine-room, of which one year must have been at sea. The approval of the Government must be obtained in every such case before the authority to receive a certificate is issued by the Examiners. Workshop service.

19. When the workshop service has been performed in a place *where engines are made*, and the department in which the applicant has been principally engaged is not "*fitting*" or "*erecting*," if the nature of the service be such as is useful training for an Engineer, the Government may, on proper representation of the circumstances, see fit to accept the service as qualifying along with subsequent experience, but in every such case the applicant must prove additional engine-room service as required above. The approval of the Government must likewise be obtained.

20. If a candidate has served in the Engine Room with a Second class Certificate in the capacity of a Second Engineer in Foreign-going Steam-Ships under 100 horse-power, or in Home Trade Passenger Steam-Ships, which are not required by law to carry a certificated Second Engineer, his service may be accepted without reference to the vessel's horse-power, provided he has been on the ship's articles as Second Engineer, and produces certificates of discharge as Second Engineer, for the required period. Service as Second Engineer where certificate not required

21. The Government may see fit to allow an applicant who, in consequence of service abroad, has been unable to obtain a Second-class Certificate, to be examined for a First-class Certificate, although he has not obtained a Certificate of the lower grade, provided he is able to satisfy them as to the satisfactory character of his services. First-class certificates without second.

22. In such cases (para. 21) or in cases where the candidate is already in possession of a Certificate of Service, should he fail to pass the examination for the higher grade, but passes the examination for the lower grade, he may receive a Certificate accordingly, but no part of the fee will be returned. Unsuccessful candidates may in certain cases receive certificates for inferior grade.

23. A candidate who under the above regulation (para. 21) has been permitted to be examined for a First-class Certificate without first obtaining a Second-class Certificate of Competency, and who fails in his examination in practical knowledge, may not be re-examined for a Certificate of the higher grade until he has served 12 months as Second Engineer with a Second-class Engineer's certificate of competency as required by the Regulations. Consequence of failure in such cases.

24. If the candidate fails altogether, *i.e.*, both in the examination for the lower as well as for the higher grade of Certificate (para. 21), he may be re-examined for a *Second-class Certificate only*, subject to the usual regulations relating to failure.

If after passing examination services are found to have been insufficient.

25. If after a Candidate has passed his Examination it is discovered on further investigation, *e.g.*, by verification on the part of the Port Officer, that his services are insufficient to entitle him to receive a Certificate of the grade for which he has passed, it will not be granted to him; but if the Government are satisfied that the error in the calculation of his services did not occur through any fault or wilful misrepresentation on his part, the Certificate may be issued to him, or he may be allowed to go up for re-examination without payment of further fee, when he has performed the amount of service in which he was deficient as the Government may direct.

Certificate of lower grade may be granted on certain conditions.

26. If, in such a case, the applicant's services are sufficient to entitle him to receive a Certificate of a lower grade, provided as aforesaid he has not wilfully misrepresented the amount of his services, an Inferior Certificate may be granted to him, and the difference between the fee paid by him for the Superior Certificate and the fee payable for the Inferior Certificate may be placed to his credit.

May have to be re-examined for certificate of higher grade.

27. In such a case when the applicant has by further service made up the time in which he was found to be short, he may be required, before he can receive the higher certificate, to be re-examined in all the subjects.

Qualifications for Certificates of Competency.

Qualification of candidate for Second class Engineer's Certificate.

28. SECOND-CLASS ENGINEER.—A candidate for a Second-class Engineer's certificate must be not less than 21 years of age;

(*a*) He must have served an apprenticeship to an Engineer for three years in England or five in India at least, and prove that during the period of his apprenticeship he has been employed on the making and repairing of engines:—Or if he has not served an apprenticeship, he must prove that for not less than three years in England or five in India he has been employed as a journeyman mechanic in some factory or workshop* on the making or repairing of engines.† In either case he must also have served one year at sea in the Engine Room as an Engineer on regular Watch in the Foreign, Home or Coasting Trade‡; or

(*b*) He must have served at least four years at sea in the Engine Room as an Engineer on regular Watch in the Foreign, Home or Coasting Trade.

(*c*) He must be able to give a description of boilers, and the methods of staying them, together with the use and management of the different valves, cocks, pipes, and connections.

(*d*) He must understand how to correct defects from accident, decay, &c., and the means of repairing such defects.

(*e*) He must understand the use of the barometer, thermometer, and salinometer, and the principles on which they are constructed.

(*f*) He must state the causes, effects, and usual remedies for incrustation and corrosion.

(*g*) He must be able to state how a temporary or permanent repair could be effected in case of derangement of a part of the machinery, or total break-down.

(*h*) He must write a legible hand, and understand the first five rules of arithmetic, and decimals, and their application to questions about consumption of stores, and full capacities of tanks and bunkers, the duty of pumps, and the direct strains in engines and boilers.

(*i*) He must be able to pass a creditable examination as to the various constructions of paddle and screw engines in general use; as to the details of the different working parts, external and internal, and the use of each part.

* No period of service in a drawing office can be allowed to count for more than six months workshop time.

† These may be either land or marine engines.

‡ *See* paragraph 13 as to service in Home or Coasting Trade.

29. FIRST-CLASS ENGINEER.—A candidate for a First-class Engineer's Certificate must be not less than 22 years of age. Qualification of candidate for First-class Engineer's certificate.

30. In addition to the qualification required for a Second-class Engineer—

(*a*) He must either possess, or be entitled to, a First-class Engineer's certificate of service; or, in the event of his not being so possessed or entitled, he must have served for one year at sea as Second Engineer with a Second-class Engineer's Certificate of Competency, or for two years at sea as Second Engineer with a Second-class Engineer's Certificate of Service: or having served one year at sea as Second Engineer with a Second-class Engineer's certificate of Service, he must show, in addition, at least six months' service as Chief Engineer in a vessel required by law to carry at least one Engineer holding a certificate. (*See also paragraph* 15 *as regards service as Third and Fourth Engineer.*)

The Examiner should therefore be satisfied that an applicant for a First-class Engineer's Certificate has not only been *in possession* of a Second-class Certificate for the periods above stated, but that he has actually *served* for such periods in the Engine Room at sea with a Second-class Certificate in the capacities referred to, and that his name has been entered in the articles of agreement accordingly. (*See also para* 21.)

(*b*) He will be required to make an intelligible hand sketch, or a working drawing of some one or more of the principal parts of a steam-engine; and to mark in, without a copy, all the necessary dimensions in figures, so that the sketch or drawing could be worked from.*

(*c*) He must also be able to take off and calculate indicator diagrams

(*d*) He must be able to calculate safety-valve pressures and the strength of the boiler shell, stays, and riveting.

(*e*) He must be able to state the general proportions borne by the principal parts of the machinery to each other, and to calculate the direct stress, the torsional stress, and the bending stress in round bars, and the direct stress and the bending stress in rectangular bars with given loads.

(*f*) He must be able to explain the method of testing and altering the setting of the slide valves, and to sketch about what difference any alteration in the slide valve will make in the indicator diagram, and also the method of testing the fairness of shafts and of adjusting them.

(*g*) He must be conversant with surface condensation, superheating, and the working of steam expansively.

(*h*) His knowledge of arithmetic must include the mensuration of superficies and solids and the extraction of the square root, and the application of these rules to questions relating to the power, duty, and economy of engines and boilers, and to the stresses in rods, shafts, and levers of the engine.

Service in the Royal Navy.

31. Engineers and Assistant Engineers of the Royal Navy are at liberty to apply for Certificates of Service, and to be examined for Certificates of Competency in the Mercantile Marine; but they must submit their applications in the manner directed by the Lords Commissioners of the Admiralty. Engineers.

32. As regards the grades of Certificates of Competency for which Officers of the Royal Navy can be examined, the rule is—"First-class Assistant," or "Assistant Engineers" of the Royal Navy may be examined for Second-class Engineers' Certificates of "Competency"; "Engineers" of the Royal Navy for First-class Certificates of Competency. Grades.

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* *See* Appendix B.

Temporary service in the Royal Navy.

33. Temporary active service as Engineer in the Royal Navy counts in applications for Certificates of Competency in the same way and to the same extent only as in the case of the service of Mercantile Marine Engineers, that is to say, so much of the applicant's time as is spent in active service at sea, or in a ship commissioned for sea service, counts as "sea service;" and so much of the applicant's time as is spent in active service on boardship in harbour, and not commissioned for sea, counts as workshop time—*See* paragraph 28, sub-section (*a*).

Engineer Artificer.

34 Service performed in the capacity of Engineer Artificer may count to qualify a Candidate for examination for a Second-class Engineer's Certificate of Competency in the Mercantile Marine. If the service has been on shore, it will count only as workshop time. If in the Engine Room at sea, the Candidate must prove that during such service he had charge of an Engine Room watch.

Fees.

Fees to be paid by applicants for examination. (Exn. 17.)

35. Candidates for examination, in making their Application on Form Exn. 3, will be required to pay the Examination fees before any step is taken, whether by inquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them, but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be.

36. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

37. If a candidate fails in his examination, *no part of the fee he has paid will be returned to him.*

38. The fees are as follow:—

Second-class Engineer's Certificate ...	Rs.	12
First-class Engineer's Certificate ...	„	24
First-class Engineer's Certificate if candidate is already in possession of a Second-class Certificate of competency granted by the Board of Trade, or by the Government of a British possession under Section 8 of the Merchant Shipping (Colonial) Act, 1869 ...	Rs.	12
Renewal of any certificate	„	5

General Rules as to Examinations.

Candidates not to take books, &c., into examination room.

39. All books necessary for the use of candidates under examination will be provided by the Government, and applicants are not permitted to take into the examination room any book, paper, document, or memoranda of any description whatever.

40. Candidates will be allowed in the time allotted to cancel any part of their work, and when required additional papers will be supplied by the Examiners, but they will not be allowed to work out the problems on a slate or on waste paper. The additional sheets must be attached to, and form part of, the examination papers.

41. Candidates for First-class Certificates have to pass an examination in Rough Working Drawing, which may, at the candidates' option, be either hand sketches clearly dimensioned and complete in the necessary *views* and *sections*, or drawings to a scale. Drawing boards and T squares will be provided by the Government, but the applicants will have to bring with them any drawing instruments they may require.*

* See Appendix B.

42. In the event of any candidate being discovered copying from another, or affording any assistance or giving any information to another, or communicating in any way with another during the time of examination, he will be regarded as having failed in his examination, and will be turned back for three months, in the same manner as if he had failed in the practical part of the examination ; and no part of the fees he may have paid for examination will be returned to him. This penalty also applies to any breach of paragraph 34. Punishment for breaking rules.

43. If a candidate leaves the room before answering any question which has been given to him, he cannot afterwards be permitted to answer it, but the Examiners may substitute other data or another question. Leaving examination room.

44. All applicants presenting themselves for examination will be required to give written answers to ten questions selected from Form Exn. 15*a*.,* "Elementary Questions for the first examinations of Engineers for certificates of competency, and of Masters and Mates for certificates in steam." These questions are intended to furnish a record to some extent of the candidate's knowledge at the time of his examination, and also to induce the candidates to pay more attention to their handwriting and spelling. Questions from Form Exn. 15*a*.

45. The Form Exn. 15*b*., on which these answers will be written, contains also some questions as to the experience of the applicant, to be answered by him in writing.

46. Examiners may add to their *viva voce* questions on the practical management of steam-engines and boilers any of those contained in Exn. 15*a*.

47. If at the expiration of the time allowed the candidate has worked out and answered correctly the whole of the questions set to him, and given satisfactory answers in the *viva voce* examination, he will be declared to have passed.

48. If at the expiration of the time allowed he has not worked out the whole of the questions set to him, but if the result of the *viva voce* examination taken in connection with the answers to such of the questions as he has worked out is sufficient to satisfy the Examiners that the applicant is competent to take charge of engines of 100 nominal horse power or upwards, he will be declared to have passed.

49. In other cases he will be declared to have failed.

50. A report of the examination, and the examination papers, will be forwarded to the Port Officer on the Form (Exn. 15). Exn. 15.)

51. If the candidate passes, he will receive the Form Exn. 16, upon which the Government will issue the certificate to the candidate, whose testimonials, &c., will be returned at the same time. Notification of having passed will be given to successful candidates. (Exn. 16.)

Failure.

52. If the applicant fails in practical knowledge, he may not present himself for re-examination until he can produce proofs of THREE MONTHS' further service at sea as Engineer from the date of failure. If he fails in arithmetic or drawing only, he may come up again at any time.

General.

53. Certificates of Competency shall be made and issued by the Government in the forms hereunto annexed.

54. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

55. No application from the holder of a certificate granted by the Government of any other British Possession or by the Board of Trade to be examined for a certificate of the same legal value shall be entertained.

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* *See* Appendix A.

APPENDIX A.

Form Exn. 15a.

Elementary Questions for the First Examinations of Engineers for Certificates of Competency and of Master and Mates for certificates in steam.

TO ENGINEER EXAMINERS.

EXAMINERS will require all candidates to fill up a form, Exn. 15*b*., of which a copy is enclosed, and they will forward the same to the Port Officer for transmission to the Government along with the report of the examination.

It is intended to issue questions of a more advanced character for first-class candidates, but in the meantime the questions for both classes of Engineers and also for Masters and Mates passing a Voluntary Examination in steam will be taken from the same book of "Elementary Questions," and candidates for first-class certificates are expected to show their superiority by giving answers more complete than those of the other candidates.

The arithmetical questions for Engineers and the *viva voce* examinations for all candidates will be continued as heretofore, and failure in the elementary questions will be treated as failure in arithmetic.

The numbers of the questions for each examination will be selected by the examiners, and they are not to be communicated to the candidate until his examination commences.

Masters and Mates may cancel questions A, B, and C, but they should fill up the form for questions D, E, F, and G, as evidence of their practical knowledge.

Exn. 15b.

Port . Class for which examined

Date Candidate's name

A. Where and how long did you serve in works at the making or at the repairing of Engines, and in what capacities?

B. How long have you served as fireman or trimmer?

C. How long have you served in the engine-room at sea, and in what capacities?

D. With what descriptions of Engines have you served at sea—Paddle or Screw or both, Jet Condensing, Surface Condensing, or Non-condensing Engines, Compounds, Trunks, Inverted Cylinders, or Horizontal Engines? What size were the engines?

E. With what descriptions of Boilers have you served at sea—Rectangular or Cylindrical, Wet-bottomed or Dry-bottomed, Multitubular, Sectional or Flue Boilers?

F. What Engine defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

G. What Boiler defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

For the questions to be answered on the following pages, *see* the book of Elementary Questions. The questions need not be written; only the answers to them.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

ELEMENTARY QUESTIONS.

1.

What parts of an engine are generally made of wrought-iron?

2.

What parts of an engine are generally made of cast-iron?

3.

For what parts of an engine is steel sometimes used?

4.

What parts of an engine are generally made of brass or gun-metal?

5.

Where is "white metal" sometimes used? On account of what property possessed by it is it adopted? What objection is there to its more general use?

6.

For what parts is Muntz metal sometimes used? Is it malleable? For what properties is it valued?

7.

What difference is there in the composition of cast-iron, of wrought-iron, and of steel?

8.

How can cast-iron, wrought-iron, and steel be distinguished from each other?

9.

What are the different properties of cast-iron, of wrought-iron and of steel?

10.

What is meant by the terms "breaking stress," "proof stress," "safe working stress"?

11.

What is the cohesive strength or breaking stress of good ordinary wrought-iron?

12.

Tempering steel: how is it done, and in what order do the colours come?

13.

What is case-hardening?

14.

Which of the common metals or alloys can be forged, and which of them are brittle or "short"?

15.

What is meant by "welding"? Which of the common metals can be welded?

16.

The expansion of metals by heat: give examples of this in the engine and in the boiler.

17.

In the construction of cylindrical marine boilers, for what parts have the plates to be worked hot? When the material is steel, what precautionary treatment of these plates is afterwards necessary?

18.

What is double riveting? In what parts of cylindrical marine boilers is double riveting employed? In which of the shell seams is it most necessary?

19.

What is "caulking," and how are seams prepared for caulking?

20.

Describe the different ways of fastening the ends of the main stays of a boiler. What are the merits of, or objections to, the different plans?

21.

What strain per square inch is allowed on boiler stays?

22.

Describe a riveted stay, and state where such stays are commonly used.

23.

Where are thin plates to be looked for in a boiler as it wears, and how is the thinness to be detected?

24.

How are boiler tubes fixed? What are "stay tubes," and how are they secured?

25.

Where is it generally that boiler tubes leak? How is this defect raired? What are the causes of this leaking?

26.

What are the causes of cracked tube plates? Where are the cracks situated? How are they repaired?

27.

What is the difference between a "dry uptake" and a "wet uptake"? Which requires most ropair? Why? Where have you seen a wet uptake?

28.

What is a superheater? What is its construction? What valves are on it? There is sometimes a gauge glass on it; what is that for?

29.

What parts of a marine tubular boiler are first injured by shortness of water?

30.

Where are angle irons sometimes used in the construction of a boiler, and where are flanged plates used?

31.

Priming: to what causes is it attributed? What means are applied to prevent it? What evils may be produced by it?

32.

Funnel draught: what makes it? What checks it?

33.

Flame is sometimes seen at the top of the funnel: what causes this appearance? Is it beneficial or is it detrimental? Why so?

34.

A blast pipe: what is its construction? Where is it placed? For what is it used?

35.

How many bottom blow-off cocks are generally fitted to each boiler, and why are they so fitted?

36.

Blow-off cocks are sometimes fitted with a spanner guard: for what purpose is this? Describe how the guard is formed?

37.

Test cocks or water-gauge cocks: where are they placed? At what heights? Must the cocks themselves be at those heights? What provision is made for cleaning these cocks should they ever become choked? When there are no test cocks how is the height of the water ascertained?

38.

What is a dead-weight safety valve? Of what are the rubbing surfaces formed? How is a lock-up valve arranged to admit of lifting it or of turning it round, and to prevent adding to the weight?

39.

About what area of safety valve is now required by the Board of Trade? What area was formerly required, and on what ground has that been altered? What is the effect of suddenly opening a safety valve when steam is up? To about what extent do safety valves rise when blowing off without being eased by hand?

40.

Spring-loaded safety valves: what advantages have they that are not possessed by dead-weight valves? What are the disadvantages as compared with dead-weight valves?

41.

Of what pieces does a glass water gauge mounting consist? How does it act? Where is it placed? At what height? Is it liable to derangement? How is its working tested?

42.

Glass water gauges have sometimes pipe connections top and bottom: what is the object of this arrangement? Should there be cocks at the extremities of these pipes?

43.

Describe a Bourdon's steam gauge. Some gauges have an inverted syphon pipe below them: what is its use?

44.

Why is a small cock sometimes put on the pipe leading to a steam gauge? Where should it be placed, and what error might be made by omitting to use it?

45.

Do steam gauges indicate the total pressure of the steam, or only a portion of that pressure? What is the pressure measured from?

46.

What is meant by the salting of the boiler? How is this prevented? What is the density of ordinary sea water? How is the density ascertained? What is the difference between the formation of scale and the salting of the boiler? What is the maximum density at which boilers should be worked at sea?

47.

Scum cocks and pipes: how are they arranged? Where are they placed? At what height in the boiler? When are they used? When must they be shut? Neglect of these cocks lead to what dangers?

48.

Scale: of what does it consist? Where is it most objectionable? How is it removed? How is its formation prevented? What evil effects are produced by it?

49.

What is a salinometer? Of what does it consist? How does it act? How is it graduated? Can it be used at any temperature indiscriminately?

50.

What harm may be done through the check valve of one of a set of boilers being defective while under way? How would you work to avoid this harm?

51.

How is the leak from a split tube stopped in a boiler at sea? Describe the operation?

52.

What is the use of dampers? Where are they fitted? When should they be used?

53.

When there are no dampers fitted, what is used instead? What evil to the boiler is sometimes attributed to this? When the heating surfaces are clean does this occur?

54.

Describe the piston of a steam cylinder, with its different rings and their uses? There are generally round pieces let in flush on one side of a piston: what are they? How are these pieces fixed?

55.

Cylinder drain cocks: what is their use? There is sometimes a valve upon each cock: what purpose does it serve?

56.

Cylinder escape valves: of what do they consist? How protected? How regulated? When are they most needed? To what danger do they expose the Engineer? What precaution is sometimes used to obviate this danger?

57.

What is a compound engine? What different kinds are there for screw steamers, in respect to the number and arrangement of their cranks and cylinders? What is a triple expansion engine?

58.

What is link motion? What are some of its advantages? In modern engines for the screw propeller when there is no link motion, what takes its place?

59.

What is a separate expansion valve? Why is it not fitted to all engines? What effect has an expansion valve upon the starting and upon the reversing of the engine?

60.

What arrangement is applied to reduce the friction of a slide valve? To what is the friction due?

61.

Describe a loose eccentric; how does it act? In what engines is the loose eccentric still employed?

62.

What is the travel of the eccentric rod? How is it measured on the eccentric? What is the travel of the slide valve when the link motion is in mid gear, and the engine still moving?

63.

What are "double beat valves"? Why are they not generally used for safety valves? Are they ever used instead of the slide valve? What objections are there to their use?

64

What is a circulating pump? Is it always worked by the main engine? Give an example from your last steamer of the three water temperatures generally noted by careful engineers?

65.

An air valve is sometimes fitted to a circulating reciprocating pump: what purpose does it serve?

66.

What is the difference between a bucket air-pump, a piston air-pump, and a plunger air-pump?

67.

Whether are double-acting air-pumps made with plungers, with pistons, or with buckets?

68.

What is an air-pump trunk? When is it necessary? How is it attached to the bucket?

69.

What class of air-pump requires both foot and delivery valves, and in what other class can either of these valves be in some cases dispensed with?

70.

When under way, when the air-pump bucket is at the top of its stroke, at what height is the water in the condenser?

71.

With a surface condenser and a single acting air-pump, what is the effect of a leaky foot valve, and what is the effect of a leaky bucket when there is also a foot valve?

72.

Air-pump pet cock or valve: where is it placed? How does it act? What is its object? Does it in every case reduce the effective capacity of the pump? Is it equally applicable to double-acting pumps?

73.

At what temperature is the hot well worked? What is the effect of higher temperatures? What is the effect of lower temperatures? What limits the lowness of temperature? Has a very low temperature any disadvantages?

74.

Bilge injection with common condensers: what are the fittings required? When is it used? What precautions are necessary in using it?

75.

When surface condensers are used, what takes the place of the bilge injection? To what is the connection made? How is its valve formed? Why is this necessary?

76.

What are the practical guides to the proper amount of opening of the inlet valve for the circulating pump?

77.

Feed-pump pet cock or valve: where is it placed? What is its use? How does it act? Is it always a necessary fitting?

78.

What are some of the ways of fastening the ends of surface condenser tubes? About what size and about what thickness are condenser tubes? What parts of a surface condenser are made of brass?

79.

What is a blow-through valve or cock? To what is it attached? There is sometimes a valve that, when opened, admits steam from the slide valve casing to the exhaust port; what is its use? To which cylinder is it fitted?

80.

What is a snifting valve? What is its use? Where is it placed? Can it be placed too high? Can it be placed too low? At what height should it be placed? Was there one in your last steamer; if so, where was it? Why are snifting valves generally omitted now?

81.

What connections are generally fitted to the donkey-pump, and to what services can it be applied?

82.

When the engines are stopped with steam up, what are to be shut and what are to be opened?

83.

How is an engine heated up before starting? What precautionary examinations are made before starting?

84.

What is an interceptor or catch-water? Where is it fixed; what is its construction; how does it act; and what attention does it require?

85.

Describe an air-pump bucket, with its valve or valves and its packing? Of what are the valves generally made?

86.

Of what materials are air-pump rods made? Why so?

87.

What is the racing of the engine? When does it occur? What danger attaches to it? What is done to prevent it?

88.

What are marine governors? What is their general construction? How do they act?

89.

What is meant by the "pitch" of a screw propeller? How is it measured?

90.

Explain the difference between a "right hand" and a "left hand" propeller, and state how each of them revolves.

91.

What is the slip of a screw propeller? How is its amount expressed in figures?

92.

Which of the valves about engines and boilers have to be worked by hand, which of them work self-actingly, and which are worked by the motion of the engine?

93.

Why is soda sometimes put into a boiler, and how is it put in when under way? What is the kind of soda used?

94.

Tallow cups for cylinders were sometimes made with two small cocks, or with only one small cock, or with one large hollow plug cock, or with one small cock and a valve; which of these is suitable for a high-pressure cylinder, and which for the cylinder of a condensing engine? Describe how the cup with only one small cock is used? What is now generally used instead of these? How has this change come about?

95.

Does a cylinder escape valve, self-acting, allow all the water to escape; if not, how much is left in the cylinder?

96.

What is a "Steam Lubricator" (sometimes called an Impermeator)? Explain its action? To what part of the engine is it connected? Whether will throwing cold water over it make it work faster or slower? Describe the one used in your last steamer?

97.

A common paddle wheel: of what is the centre made? Of what are the arms formed? What is the form of the bolts which attach the floats to the arms? How are the arms attached to the centres?

98.

Why have some paddle wheels one or more cast-iron floats in each wheel? With what engines are these most required? At what part of the circumference are they placed?

99.

Why are paddle wheel floats sometimes made of different breadths in the same wheel? With what description of engine is this most needed? Where are the broad floats placed, and where are the narrow floats placed in the circumference of the wheel?

100.

What difference is there between a radial paddle wheel and one with feathering floats? What is the object of feathering floats? Are all the eccentric rods attached in the same way, and are they all of the same form?

101.

Whereabout is the centre of the eccentric of a paddle wheel with feathering floats placed? In that case are the feathering levers on the striking face or on the back of the float? When the paddle shaft has an outer bearing, how is the eccentric made?

102.

Of what materials are the working surfaces of a paddle wheel with feathering floats? Are they all lubricated? With what?

103.

What is a "Disconnecting Paddle Engine"? At what place is the disconnecting effected? How is it accomplished? In which of the cranks of a disconnecting engine are the crank pins fixed?

104.

Whether is link motion valve gear or the loose eccentric generally used for disconnecting paddle engines? For what steamers are disconnecting paddle engines frequently employed?

105.

What are expansion joints? Where are they necessary? What attention do they require? Of what should the working surfaces be made?

106.

What omission in the construction of expansion joints may lead to a serious accident when steam is first applied? How is this prevented in the construction of a steam trunion pipe for an oscillating engine?

107.

Describe an oil cup with a syphon worsted? How is the worsted arranged? How is it cleaned? How far down the tube does it extend?

108.

Describe a thrust bearing; which of the surfaces wears? Why are there sometimes a number of oil tubes for one thrust bearing?

109.

What parts of a screw shaft are generally covered with brass? Why is this necessary? About what thickness is the brass?

110.

What is the stern tube or screw shaft pipe? Why is a pipe of such a length required? Of what is it made? How is it fixed at each end?

111.

What is a lignum vitæ bearing? How is the wood fitted? Where is such a bearing generally used?

112.

How is a screw propeller fixed on the shaft? What means are used to prevent its getting loose at sea?

113.

Where are sluice valves placed? What large sluice valve is there in almost all screw steamers? From what position should this valve be worked? Why so? What attention should it receive?

114.

With a condensing engine, what valves or cocks are on the skin of the ship in the engine-room and in the stokehole?

115.

What are the necessary fittings of a marine boiler?

116.

With a surface condensing engine, what cocks or valves are open some time before the engine is started so as to be ready for starting whenever the order is given?

117.

What is a steam jacket? What cocks are on it? In what engines are jackets most generally used? Do they require to be felted?

118.

What parts of an engine or its fittings should be felted or otherwise protected from radiation?

119.

What are the small cylinders sometimes fitted on the slide valve casing cover of vertical engines? Explain their action? To what are they connected by a pipe? Why so?

120.

Name the principal pipes in connection with the engines and boilers of a steamer, and state to what the ends of these pipes are connected?

121.

Through what cocks or valves, pipes and chambers does the water pass on its way from the sea inlet rose plate to the water space of the boiler, with a jet condenser?

122.

Through what cocks or valves, pipes and chambers does the circulating water of a surface condenser pass?

123.

Through what cocks or valves, pipes and chambers does the steam pass from the boiler until it is in the form of water in the hot well?

124.

Name the pieces of the engine through which the pressure of the steam is transmitted from the piston to the screw propeller. Name them in the order in which they act.

125.

What is an air vessel? How does it act? At what parts of an engine or of its fittings are air vessels generally applied?

126.

What is the construction of a mud box? Where should mud boxes be placed? Why are they necessary? How should the space be divided by the rose plate, and why?

127.

What is a trunk engine? When used in a horizontal engine for a right-hand screw propeller, at which side of the vessel should the cylinders be placed? Why so?

128.

What is an oscillating engine? For what steamers are oscillating engines generally adopted? Why? How is the steam conveyed to and from the slide valve casing?

129.

Of what parts does the valve motion gear of an oscillating engine consist?

130.

For what have geared engines sometimes been used? Of what were the cogs of the large wheel made?

131.

At what part of a screw steamer is the pressure that propels it applied to the hull?

132.

At what part of a paddle steamer is the pressure that propels it applied to the hull?

133.

About how much fuel per indicated horse power per hour is required by modern steam engines, common, compound and triple expansion?

134.

What is the explanation of the economy of the surface condenser?

135.

What is the construction of a surface condenser? Of what are its tubes made? How are they fixed? How are they kept tight? What is done with a split tube?

136.

Where do surface condensers foul? How are they cleaned?

137.

What non-conducting substances are employed to prevent radiation, and how are they applied?

138.

In the construction of smoke-box doors and of dry uptakes, what provision is made to lessen the amount of radiation?

139.

How can the formation of black smoke be prevented? Describe smoke preventing apparatus?

140.

What is meant by "circulation" in a boiler, and what are the results of defective circulation?

141.

What means are sometimes adopted to improve the circulation in a boiler?

142.

By what arrangement is the circulation promoted in a "hay-stack" boiler?

143.

Describe a ship's side air-pump discharge valve? In what respects does it sometimes differ from a common stop valve, and what attention does it require?

144.

What is the construction of a feed escape valve, to what is its discharge connected, and how is its loading regulated?

145.

When there is no feed escape valve, what is the arrangement of the feed valves or cocks?

146.

What is the measure of a horse power? How is indicated horse power ascertained?

147.

Has "nominal horse power" a fixed meaning? What is the use of this expression? What is generally taken as the measure of one horse-power nominal?

148.

What is "back pressure" in a cylinder? About how much is it in each of the cylinders in your last steamer? Is excessive cushioning ever a trouble under certain conditions in modern engines? Say when and why and in which cylinder this occurs?

149.

What is meant by "speed of piston"? About how much is the speed of piston in modern marine engines?

150.

What is "atmospheric pressure"? What is its average amount? What instrument tells this amount?

151.

What is "gross pressure" or "absolute pressure"? What pressure is it that is shown by the steam gauge?

152.

What is meant by "cutting off" steam? How is it done? What part of the valve regulates the cut off?

153.

What is a piston slide valve? Describe its construction? Why are such frequently employed in place of the common slide valve? What is a great drawback to the use of these valves?

154.

What fixes the time of closing the exhaust? After the exhaust is closed and before the port opens for steam, what becomes of the steam that is in the cylinder?

155.

What is the "lead" of the valve? What is its object? About what amount is it?

156.

What is the "cover" or "lap" of the valve? What is its object? About what proportion of the stroke of the valve is it made?

157.

What is the "exhaust cover" of a slide valve? What is its effect upon cushioning and upon exhaust?

158.

What is "minus cover" or "minus lap" on the exhaust? What is its effect upon the exhaust and upon cushioning?

159.

What is "cushioning" or "compression" in a steam cylinder? How is it affected by the amount of cover or of minus cover there may be upon the exhaust? How is it affected by the exhaust pressure?

160.

What is "mean effective pressure"? How is its amount ascertained?

161.

What is a dial vacuum gauge? What is its construction? For what is it used? About what amount should it show when the engine is working all right? What effect has the variations it indicates on the performance of the engine?

162.

Does the vacuum gauge enable you to tell what pressure there is in the condenser, or must you have recourse also to the barometer to arrive at that? How would you ascertain the actual amount of back pressure there is in the condenser?

163.

What is a barometer? What is its construction? Is a barometer sometimes used instead of a vacuum gauge? In what respect does the weather barometer differ from the vacuum gauge barometer?

164.

The common vacuum gauge and the common steam gauge: in which of them are the graduations marked from atmospheric pressure? Does either of them tell what is the true actual pressure in the boiler or in the condenser?

165.

Do steam and vacuum gauges vary with the variations of the weather barometer? When the weather barometer varies from 29 to 31, how much will the vacuum gauge vary, and how will that affect the working of the engine? Why so?

166.

Vacuum is generally stated as so many inches. What is meant by, say, 20 inches vacuum? What does that tell us about the absolute pressure of the vapour then in the condenser?

167.

From what depth will a pump draw water? Is there any limit? Why?

168.

What is vacuum? Can vacuum move a piston? When the temperature of the water in the condenser is 212°, what is the greatest degree of vacuum there can then be in the condenser?

169.

What is a thermometer; its construction? What is the property of matter that is the principle of its construction? What temperatures are regularly noted by careful engineers?

170.

What is the temperature of (1) melting ice, (2) of boiling water, (3) of steam about 60 lbs. pressure by the steam gauge, (4) of steam about 100 lbs., and (5) of strain about 150 lbs.; also (6) of smoke in the funnel, and (7) of water in the hot well?

171.

What is meant by the "conduction" of heat? Give examples of it in the boiler and in the engine.

172.

What is meant by the "convection" of heat? Give examples of it in the boiler and in the engine.

173.

What is meant by "radiation" of heat? Give examples of it in the boiler and in the engine.

174.

Which is convection, which is radiation, and which is conduction in the following cases: (1) Heat from the glowing fuel to the furnace crown. (2) Heat passing from one side of the furnace crown plate to the other. (3) Heat passing from the steam pipes in the engine-room. (4) The heat of evaporation?

175.

What are the effective heating surfaces of a marine boiler? What is an objection to vertical heating surfaces?

176.

What parts of a marine engine are exposed to danger when the temperature is below freezing point?

177.

What precautions are necessary in cold climates when the temperature is below freezing point?

178.

State as many ways as you can by which a boiler might not get its full feed; that is, a boiler, or one of a set of boilers, gets short of water although the feed valve is open its proper amount; to what causes might this be due?

179.

Of what are furnace bars generally made? About what thickness are they at top? About what space is between them? Whether are the bars put further apart for Newcastle coal or for Welsh coal?

180.

Which burns faster, Newcastle coal or Welsh coal? Which is the flaming coal? Which makes most smoke?

181.

About how many tons of steam coal will be burnt per day in four furnaces each 3′ 0″ wide, and of about the usual length? On what grounds do you say so?

182.

About how many tons of steam coal will be burnt per day with good compound engines to drive an ordinary steamer of 40 ft. beam 10 knots an hour by steam alone? On what grounds do you say so? What percentage more coal would be required to propel the same steamer one knot faster?

183.

About how many tons of steam coal will be burnt per day with a good compound engine, surface condensers, the low pressure cylinder 70 inches diameter, doing average work? On what grounds do you say so?

184.

A pair of inverted cylinder direct acting engines, there is a liner half an inch thick between the ahead eccentric rod and the eccentric strap, in overhauling the engine this piece is lost and forgotten; what difference will its omission make in the working of the engine, on the admission, on the cut off, and on the exhaust of the steam? Which will take place earlier, and which later distinguishing between the up stroke and the down stroke?

185.

A pair of inverted cylinder direct acting engines driving a right-hand screw; on which of the crosshead guide bars is the pressure greatest in the up stroke, and on which in the down stroke?

186.

A screw propeller is getting loose; it has a little play on the shaft, sideways on the key or feather; how will this show in the engine-room?

187.

How would you prove whether the centre line of the trunions of an oscillating cylinder be fair with the centre line of the main shaft?

188.

How can the fairness of a line of screw shafting be tested without lifting the shafts?

APPENDIX B.

Form Exn. 17.

Examination in Rough Working Drawing for a First-Class Engineer's Certificate of Competency.

1. The regulations in regard to the qualifications of a candidate for a first-class Engineer's Certificate of Competency specify that—

> "He must be able to make rough working drawings of the different parts of the engines and boilers."
>
> "He must be able to state the general proportions borne by the principal parts of the machinery to each other."

2. In accordance with these clauses, a candidate for a first-class certificate is required to make a rough working drawing of the parts specified on the other side of this leaf. A mechanic who has been some years in charge of marine engines and boilers ought by this time to have familiarly in his mind the general construction of at least one set of engines and boilers, say that set he was

last with. Fine drawing is not expected, and in the proportions of the parts a wide margin will be allowed; absurd dimensions will be failure in practical knowledge.

3. The drawing must, however, be practically a working drawing, giving a sufficient number of views to show the parts fully—sections, plans, or elevations, just as the candidate would require to be supplied to him if he had to make the parts to the design of another person.

4. A clear hand sketch showing the construction, completely and fully dimensioned, will be accepted if the candidate prefers this alternative.

5. A portion only of the parts specified may be accepted in place of the whole, if that portion is sufficient to show that the candidate has a good practical idea of the construction of the parts, and a fair notion of their general proportions or dimensions.

6. Candidates are hereby cautioned not to put on paper what they have not fully considered, and deliberately intend to be understood, as their statement of what they know about the construction of any part required.

7. The statements given in by a candidate may be in themselves, apparently, of little importance, but as sample material from which the state of the candidate's knowledge of engines and boilers is to be inferred, every detail which is glaringly inconsistent with a sound knowledge of the use of the part, or in which an essential consideration has evidently been overlooked, is an important element in the description which the candidate is giving of his own qualifications.

8. The candidate is advised not to begin more than he can clearly finish in the time allowed. An important object in this part of the examination is to ascertain whether the candidate can be trusted to mark all necessary dimensions upon a sketch or a drawing. The test of this is, practically, the making of the part from the sketch without having to supply additional dimensions, and without measuring the drawing. To prove this ability the candidate must fully dimension the parts shown in his sketch or drawing, notwithstanding that the parts may be correctly drawn to scale. A drawing is fully dimensioned when no part of it is left to the option of the party who is to work to the drawing.

9. To prevent misunderstanding, however, when the candidate has been led into showing more of the details than he has time fully to finish, he should name, in the statement on the other side, the particular parts which he has fully dimensioned.

10. All dimensions should have lines and darts, to indicate distinctly the points between which the dimensions are given.

11. Beware of writing cross dimensions upon centre lines, or upon longitudinal dimension lines. This is not an order but a recommendation.

12. The candidate is not expected to design anything; he has merely to sketch or draw a something with which he is expected to be already familiar.

13. Pencil in nothing after half-past 3; all the dimensions, the figures, and the darts must be inked in; employ the remaining time in examining the drawing and in inking in any figures which may have been before overlooked, and in checking the dimensions.

14. Make sure that you will have sufficient room on the drawing sheet to show all the necessary views. You can have another sheet or drawing paper if necessary. All the paper used must be forwarded with the drawing.

15. Fill in and sign the following statement.

(Specimen.)

Form **Exn. 17a.**

SUBJECT FOR EXAMINATION IN ROUGH WORKING DRAWING.

(Read the foregoing general instructions.)

A common slide valve with its spindle. Show also an outline section of the ports at the cylinder face. Show the provision for connecting the slide valve to the spindle.

The candidate is requested to fill up the following, and to attach this paper to his drawing.

Statement by the Candidate.

The accompanying drawing, made by me this day, without referring to any document, and without the assistance of any person, is intended by me to be sufficient for the new construction of the parts above described to fit the places of similar parts which are to be removed. The construction is similar to what I have been with in the_____steamer_____, but the dimensions may be different.

The diameter of the cylinder is_____

The stroke of the piston is_____

The stroke of the valve is_____

The cover at top end on steam side is_____

The cover at bottom end on steam side is_____

The lead at top is intended to be_____

The lead at bottom is intended to be_____

The inside cover is +_____or-_____

The thickness of the face of valve is_____

The thickness of the body of valve is_____

The greatest opening for steam will be_____

That gives an area equal to one_____

The opening for exhaust when the crank is on the top centre is_____

That gives an area equal to_____th of piston.

The length of the connecting rod is_____

The valve will cut off steam on the down stroke at_____

The valve will cut off steam on the up stroke at_____

The Candidate may omit this part if he chooses.

The parts fully dimensioned, in ink, are_____

Dated at_____

this_____ day of_____18

_____ Applicant.

BENGAL.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act*, 1869.

Colonial Certificate of Competency

AS

FIRST CLASS ENGINEER.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of FIRST CLASS ENGINEER in the Merchant Service, I do hereby, in pursuance of Act VII of* 1884, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

this _____ *day of* _____ 18——.

Under-Secy. to the Govt. of Bengal.

BENGAL.

No. of Certificate [redacted]

*Address of Owner*_____

*Date and Place of Birth*_____

*Signature*_____

This Certificate is given upon an ORDINARY EXAMINATION passed at _____ *on the* _____ *day of* _____ 18 .

Any ENGINEER who fails to deliver up a Certificate which has been cancelled or suspended, is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the _____ *day of* _____ 18 .

Registered,
Port Officer of Calcutta

BEN

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, issued under section 8 of the Merchant Shipping (Colonial) Act, 1869.

Colonial Certificate of Competency

AS

SECOND CLASS ENGINEER.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of SECOND CLASS ENGINEER in the Merchant Service, I do hereby, in pursuance of Act VII of 1884, grant you this Certificate of Competency.*

By order of the Government of Bengal,

this _____ *day of* _____ 18__.

Secy. Govt of Bengal.

(26)

BENGAL.

No. of Certificate [redacted]

Address of Owner——————————————————

Date and Place of Birth——————————————————

Signature——————————————————

This Certificate is given upon an ORDINARY EXAMINATION passed at——————*on the*——————

day of——————18——.

Any ENGINEER who fails to deliver up a Certificate which has been cancelled or suspended, is liable to a penalty not exceeding Rs. 500. *This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act* 25 *and* 26 *Vic., cap.* 63, *sec.* 23, *to cancel or suspend Certificates.*

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the——————*day of*—————— 18 . .

Registered.

Port Officer of Calcutta.

NOTIFICATION.

No. 24 Marine, dated Calcutta, the 30th January 1890.

UNDER the powers conferred upon him by section 36 of Act VII of 1884 (the Indian Steam-ships Act), and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to engine-drivers of sea-going steam-ships having engines of under 50 nominal horse-power.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

1. Certificates of competency will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed and arrangements have been made for holding the examinations periodically at the port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint.

2. The application for examination is to be made in Form Exn. 3*a*, which must be filled up at the Port Office. The Exn. 3*a* properly filled in, together with the candidate's testimonials, must be lodged with the Port Officer not later than the day before the day of examination.

3. A candidate for a certificate of competency under these rules must be not less than 22 years of age.

4. He must have served three years as principal serang or tindal in the engine-room of a sea-going steamer under a certificated Engineer.

5. He must have the testimonial shown in Appendix A filled up by the Engineer with whom he has last served, or his other testimonials must contain all the particulars therein required.

6. He must pass a *viva voce* examination before the Board of Examiners as to the working of an engine and the use of its different parts.

7. He must, if required, be able to show his practical qualifications by one week's trial in a steamer, after fulfilling the other tests to which he will be subjected.

8. He must show a knowledge of the use of brine cocks and blowing off, of the salinometer, and of the care of the boiler in salt-water.

9. Candidates for examination, in making the application on Form Exn. 3*a*, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them; but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service or are able to produce satisfactory testimonials, as the case may be.

10. The fee for examination under these rules is ten rupees, and the amount must be remitted with the application to the Port Officer. In any case in which a candidate offers money to any other officer than the Port Officer, and in any place but the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

11. If a candidate fails in his examination, *no part of the fee he has paid will be returned to him.*

12. In case of failure, candidates may be re-examined *de novo* after a lapse of six months, if the past examination showed that they might reasonably be expected to qualify.

13. Certificates of competency shall be made and issued by the Government in the form hereunto annexed.

14. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

TESTIMONIAL.

I *hereby certify that* *has served with me in the engine-room of* *as principal serang or tindal for a period of* *, during which time he has discharged his duties to my entire satisfaction.*

I consider that he fully understands the working of an engine, and has sufficient tact, presence of mind, and energy to look after and manage the working of the engines of a sea-going steamer having engines of under 50 nominal horse-power.

Signed

No. and description of Certificate.

Note.—Any Engineer giving a testimonial in this form should be very careful in doing so, as the document may materially influence the applicant's eligibility as a candidate.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

ENGINE-DRIVER OF A SEA-GOING STEAM VESSEL UNDER ACT VII OF 1884.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of Engine-driver on a sea-going Steam-ship having engines of under* 50 *nominal horse-power, I do hereby, in pursuance of Act VII of* 1884, *grant you this CERTIFICATE OF COMPETENCY as Engine-driver.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

*The*_____*day of*_____18____. *Under-Secretary to the Govt. of Bengal.*

No. of Certificate

*Bearer*_____ *son of*_____ *by caste*_____

Date and Place of Birth, showing Village, Thana and District*_____

*Residence, showing Village, Thana and District*_____

*Height*_____

*Personal description, stating particularly any permanent marks or scars*_____

*No. of Register Ticket*_____

*Signature*_____

Any Engine-driver who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer of Calcutta.

*Issued at Calcutta on the*_____ *day of*_____ 18____.

Registered.

Port Officer of Calcutta.

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* If not known exactly, must be stated on the best information or evidence.

NOTIFICATION.

No. 25 Marine, dated Calcutta, the 30th January 1890.

UNDER section 10 of the Indian Merchant Shipping Act, 1859, the Lieutenant-Governor is pleased, with the sanction of the Governor-General in Council, to make the following rules for the conduct of examinations for Masters and Mates of foreign-going ships and as to the qualifications to be required. These rules are in supersession of the rules issued under the notification dated the 28th of August 1877.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose examiners have been appointed, and arrangements have been made for holding the examinations periodically at the port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint.

Examinations continued till all the Candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the Candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Notice of application for examination to be given to the Port Officer.

3. Candidates for examination must make their application upon the appropriate Form (Exn. 2), which must be filled up at the Port Office. The Exn. 2, properly filled in, together with the Candidate's testimonials and discharges, must be lodged with the Port Officer of Calcutta not later than the day before the day of examination, and the Candidate must conform to any regulations in this respect which may be laid down by the Government, as, if this be not done, delay may be occasioned.

Testimonials of character, conduct, and ability required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges may have to be verified before the Candidate can be examined, it is desirable that they should be handed in together with the Form, Exn. 2, as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners, and of British Seamen serving in foreign vessels, which cannot be verified by the Port Officer, must be confirmed either by the Consul of the country to which the ship in which the Candidate served belonged, or by some other recognized official authority of that country, or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case will be decided on its own merits, and if the sufficiency of the proofs given appears to be at all doubtful, it must be referred to the Government.

Certificates as to age.

6. Should any doubt exist as to the age of a Candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British Vessel. In the case of natives of India, who may not be able to speak English, their Certificates will be endorsed to the effect that they are only valid for vessels manned and officered entirely by Asiatics.

8. The time for which length of service as Seaman or Officer in the Mercantile Marine is to be reckoned in all cases referred to in the following paragraphs is to commence at the date when the Articles of Agreement were signed by the Applicant, and to end at the date when he was discharged as shown on the Articles of Agreement. The Certificates of Discharge will generally be sufficient evidence of this, but great care must be exercised by the Port Officer and Examiners to detect any tampering in any way with the information contained in them, and to report to the Government at once any suspicious cases.

Verification of services, &c., by Articles

9. Services, which cannot be verified by proper Entries in the Articles of the Ships in which the Candidates have served, cannot be counted. For instance, a man will state his

service to have been as Second or Only Mate, and to support his assertion will produce a Certificate of Discharge or of employment by the Master, to the effect that he served as Mate, when, on reference to the Articles, it appears that he has actually been rated as Boatswain; the service in such a case will not be regarded as having been in the capacity of Mate.

Promotion during Voyage

10. Whenever a man has, from any cause, been regularly promoted on a vacancy in the course of the Voyage from the rank in which he first shipped, and such promotion, with the ground on which it has been made, is properly entered in the Articles and in the Official Log Book, he will of course receive credit for his service in the higher grade for the period subsequent to his promotion.

Service in the coasting trade

11. Service in the coasting trade may be allowed to count as service, in order to qualify a Candidate for examination for a Certificate of Competency for Foreign-going Ships, it being understood, however, that service in the coasting trade must amount to half as much again as service in the foreign trade, and that service in a lower grade than that of First or Only Mate in the coasting trade will not be recognised as officer's service.

12. Three years' service as Mate in the coasting trade, together with at least nine months' service as Master, may be allowed to count as service for a Master's Certificate, provided the Candidates' entire service at sea calculated as above is sufficient, and that his services as Mate and Master in the coasting trade can be proved by the Articles, and provided he has already passed an examination *for the Foreign Trade*, unless, *under special circumstances*, the Government see fit to dispense with this latter provision.

13. Service in Pleasure Yachts under 80 tons, if performed within Home Trade limits, will not be accepted towards qualifying a Candidate for examination.

14. Service in Pleasure Yachts will not be accepted at all unless verified by satisfactory proofs, and it must be distinctly understood that accepted service is confined to *actual sea service*, service in harbour or port being inadmissible. *See also para.* 21.

Service as an Apprentice.

15. Time for which Indentures of Apprenticeship are in force will be accepted as sea service, provided that the Apprentice has remained by the ship for at least four-fifths of the time covered by the Indentures, and the Indentures of the applicant are endorsed by the Owner or Master to whom he has been bound, to the effect that he has performed his service faithfully for the whole time agreed upon.

Service as 3rd or 4th Mate to qualify for 1st Mate.

16. Service as Third or Fourth Mate may be accepted as equivalent to service as Second Mate to qualify a Candidate for examination for a Certificate of Competency as First Mate, provided he is able to produce a satisfactory testimonial from the Master or owner of the vessel in which the service was performed, showing that he has had charge of a watch while serving as such Third or Fourth Mate, and that during the whole of the time claimed he was in possession of a Second Mate's Certificate of Competency, valid in the United Kingdom.

Service as 3rd or 4th Mate to qualify for Master.

17. Service as Third or Fourth Mate may also be accepted on the same conditions to qualify a Candidate for examination for a Master's Certificate of Competency, provided he can produce satisfactory evidence of his having served at sea 12 months as Second Mate of a Foreign-going Ship while in possession of a First Mate's Certificate of Competency, valid in the United Kingdom. If a Candidate has had no service as First Mate he must have been six and-a-half years at sea, of which two and-a-half years must have been as Mate of a lower grade under the above-named conditions. It will also be noted that occasional service in charge of a watch in the daytime will not be accepted as Mate's service under the Regulations.

Service on board a Training Ship.

18. Part of the time served on board a training ship will be allowed to count as service at sea, provided that the Candidate can produce amongst his testimonials a Certificate from the Committee that he has conducted himself reditably, and passed a good examination in seamanship so

within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined.

48. IN NAVIGATION, &c.—He must write a legible hand, and will be required to give in writing, *vide supplementary viva voce* test, page 37, definitions of various astronomical and other terms used in navigation.* He must have a competent knowledge of the first five rules of arithmetic, and the use of logarithms. He must be able to work a day's work complete, correcting the courses for deviation, lee-way, and variation. He will be required to find the latitude by meridian altitude of the sun, and the difference of longitude from a given departure by parallel sailing; also to find the course and distance from one position to another by Mercator's method. He will be required to find the time of high water at a given port, to observe and calculate the amplitude of the sun, and to find the error of the ship's compass therefrom, and also the deviation, the variation being given. He must be able to find the daily rate of the chronometer from error observed, and to find the longitude from altitude of the sun by the usual methods. He must understand the use of the sextant, with its adjustments, and be able to observe with it, find the index error by the horizon, and *read off* and *on the arc*.† He must also pass a satisfactory examination in the International Code of Signals.‡

49. IN SEAMANSHIP, &c.—He must give satisfactory answers as to the standing and running rigging of ships; as to bending, unbending, setting, reefing, taking in and furling sail; as to sending masts and yards up and down, &c., &c.; as to the management of a ship when under canvas; of a ship's boat in heavy weather, and as to dunnaging and stowing cargo, &c. He must have a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog, and sound signals,§ and be able to describe the signals of distress, and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals ‖ He must be able to mark and use the lead and log lines. He must also understand the use and management of the rocket apparatus in the event of his vessel being stranded, and other questions of a like nature appertaining to the duties of the Second Mate of a ship, which the Examiners may think necessary to put to him. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Second Mates' Certificates of Competency for Foreign-going Steam-ships.

50. AN ONLY AND FIRST MATE.—An Only Mate and a First Mate must be not less than nineteen years of age, and must have served five years at sea, of which in the case of a First Mate, one year must have been as Second or Only Mate. *See* also paras. 11, 16 and 27.

On and after the 1st April 1890, no Candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediataly preceding the date of his application to be examined.

Only and First Mate.

A Candidate for an Ordinary Certificate of *any* grade, who does not already hold an Ordinary Certificate of a lower grade, must prove that he has served 12 months in a square-rigged sailing vessel within the last five years.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined.

51. IN NAVIGATION.—In addition to the qualifications required for a Second Mate, an Only and First Mate must be

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* *See* Appendix A.

† *See* Appendix B. ‡ *See* Appendix C. § *See* Appendix D. ‖ *See* Appendix E.

able to find the true bearing of the sun and the error of the ship's compass from an observed azimuth of the sun, both from an altitude and also from the "Time Azimuth Tables," and with the variation given compute the deviation; to find the latitude from a single altitude of the sun off the meridian, and be able to use and adjust the sextant,* and to find the index error by the sun; also to ascertain the true bearing of the sun, &c., and the ship's position by Sumner's Method by Projection.† He must also be conversant with the use of Mercator's Chart, and be able to find, on either a "true" or "magnetic" chart,‡ the course to steer and the distance from one given position to another; and find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of ship from the object at the time of taking the second bearing. He must also understand how to keep a ship's Log Book. He will also be required to answer certain questions in writing (*and orally*) relative to cyclones or revolving storms.§

52. In Seamanship, &c.—In addition to the qualifications required for a Second Mate, a more extensive knowledge of seamanship will be required, as to shifting large spars, rigging sheers, taking lower masts in and out, how to moor and unmoor ship, and to keep a clear anchor; to carry out an anchor; how to manage a ship in stormy weather; how to cast a ship on a lee shore; how to secure the masts in the event of accident to the bowsprit; and how to rig purchases for getting heavy weights, anchors, machinery, &c., in and out. He must give satisfactory answers as to the ventilation of holds and the stowage of explosives. He must also know how to rig a sea anchor, and what means to apply to keep a vessel disabled or unmanageable out of the trough of the sea, and lessen her lee drift; how to get a cast of deep sea lead in heavy weather; and answer any other questions appertaining to the duties of an Only and First Mate of a ship which the Examiners may think necessary to put to him. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Only and First Mate's Certificates of Competency for Foreign-going Steam-ships.

53. A MASTER must be twenty-one years of age, and have been six years at sea, of which one year must have been as First or Only Mate in a Foreign-going Ship, and one year as Second or Only Mate; or he must have been six and-a-half years at sea, of which two and-a-half years must have been as Second Mate of a Foreign-going Ship, during the last twelve months of which service as Second Mate he must have been in possession of a First Mate's Certificate. *Vide also paras.* 11, 12 and 17. Master.

On and after the 1st June 1889, no Candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

A Candidate for an Ordinary Certificate of any grade, who does not already hold an Ordinary Certificate of a lower grade, must prove that he has served 12 months in a square-rigged sailing vessel within the last five years.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined.

54. In Navigation.—In addition to the qualifications required for a Second, Only, and First Mate, a Master must be able to compute the latitude from the meridian altitude of a star, &c. He must be able to find the magnetic bearing from

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* *See* Appendix H.

† *See* Appendix I.

‡ *See* Appendix F. The terms "true" and "magnetic" are used throughout the Regulations for the sake of brevity and convenience for indicating charts that have compasses engraved upon them showing the "true" or "magnetic" points of the compass respectively.

§ *See* Appendix K.

equidistant compass bearings of any fixed object when at sea, and compute the deviation therefrom. He must construct a deviation curve upon a "Napier's" diagram, which will be furnished by the Examiner, and understand the practical application of the same, and give satisfactory written (*and oral*) answers to certain practical questions on the effect of the ship's iron upon the compasses, the method of determining the deviation, and compensating same by magnets and soft iron.* He will be required to find the course to steer by compass in order to counteract the effect of a given current, and find the distance the ship will make good towards a given point in a certain time and to work out practically the correction to apply to soundings taken at a given time and place to compare with the depth marked on the chart.†

55. In Seamanship, &c.—In addition to the qualifications required of a Second, Only, and First Mate, he must be able to construct jury rudders for both wooden and iron vessels, and also rafts. He will be examined as to his resources for the preservation of the ship's crew in the event of wreck; as to the management of ships in heavy weather; as to rescuing the crew of a disabled ship; as to steps to be taken when a ship is on her beam ends, or in any danger or difficulty; or if disabled or unmanageable and on a lee shore; heaving a keel out, &c. He must explain the mode of procedure when placing ship in dry dock, directing repairs, and if putting in to port in distress with damage to cargo and ship. He must possess a sufficient knowledge of what he is required to do by law, as to entry and discharge, and the management of his crew, and as to penalties, and entries to be made in the official log, and a knowledge of the measures for preventing and checking the outbreak of scurvy on board ship, and the law as to load line marks, and the entries and reports to be made respecting them. He will be questioned as to his knowledge of invoices, charter party, bills of-lading, Lloyd's agent, and as to the nature of bottomry, also bills-of-exchange, surveys, averages, &c., and must answer any other questions of a like nature appertaining to the management of a ship which the Examiners may consider it necessary to touch upon. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Masters' Certificates of Competency for Foreign going Steam-ships.

Fore and Aft rigged ships.

Certificates for Fore and Aft rigged Vessels.

56. Certificates for the grades of Master, First Mate, Only Mate, and Second Mate, on which the words "for Fore and Aft rigged vessels only" will be written, will be issued to Candidates who have not complied with the regulation which requires them to have served at least one year in square-rigged *sailing* vessels, or who prove in course of examination that they are ignorant of the management of square-rigged ships.

57. A certificate "for Fore and Aft rigged vessels only" will not entitle the possessor to act in a capacity for which a certificate is required in square-rigged vessels, amongst which are classed full-rigged ships, barques, brig, barquentines, brigantines, and steam-ships carrying square sails.

58. A Candidate possessing a certificate "for Fore and Aft rigged vessels only," and desiring to obtain an ordinary certificate of the same grade, must prove that he has served at sea at least one year in a square-rigged *sailing* vessel, and will be re-examined both in navigation and seamanship.

Foreign-going Steam-Ships.

Qualifications for Certificates of Competency for Foreign-going Steam-ships only.

59. Certificates of Competency will be issued, subject to the examinations hereinafter described, for officers who have served in steam-ships, and who, owing to absence of service in square-rigged sailing ships, cannot under the

* *See* Appendices G and M.
† *See* Appendix F.

existing regulations obtain Certificates of Competency to act in the capacity of Masters or Mates of square-rigged ships.

60. These certificates will entitle the holders to go to sea as Masters and Mates of foreign-going steam-ships, but will not entitle the holders to go to sea as Masters or Mates of foreign-going sailing ships.

61. There will be no distinction in respect of "Fore and Aft" and "Square-rigged" steam-ships.

62. EXAMINATION IN COLOURS.—All Candidates for Certificates of Competency must pass the examination in Colours.

63. A SECOND MATE must be not less than seventeen years of age, and must have been four years at sea. *See* also para. 11. Second Mate

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

64. IN NAVIGATION, &c.—He must write a legible hand, and will be required to give in writing (*vide supplementary viva voce test, page* 39) definitions of various astronomical and other terms used in navigation.* He must have a competent knowledge of the first five rules of arithmetic, and the use of logarithms. He must be able to work a day's work complete, correcting the courses for deviation, leeway, and variation. He will be required to find the latitude by meridian altitude of the sun, and the difference of longitude from a given departure by a parallel sailing; also to find the course and distance from one position to another by Mercator's method. He will be required to find the time of high water at a given port, to observe and calculate the amplitude of the sun, and to find the error of the ship's compass therefrom, and also the deviation, the variation being given. He must be able to find the daily rate of the chronometer from error observed, and to find the longitude from altitude of the sun by the usual methods. He must understand the use of the sextant with its adjustments, and be able to observe with it, find the index error by the horizon, and read *off* and *on* the arc.† He must also pass a satisfactory examination in the International Code of Signals.‡

65. IN SEAMANSHIP, &c.—He must give satisfactory answers as to the standing and running rigging of steam-ships; as to bending, unbending, setting, reefing, taking in and furling sail; as to sending masts and yards up and down, &c., &c., as to seeing everything in readiness and clear for getting under way, and as to the precautions to be then observed with regard to engines, propellers, &c.; as to the management of a steam-ship when under canvas; and of a ship's boat in heavy weather, and as to dunnaging and stowing cargo, &c. He must have a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog, and sound signals,§ and be able to describe the signals of distress and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals.‖ He must be able to mark and use the lead and log lines. He must also understand the construction, use, and action of the sluices, and of the water-ballast tanks. engine-room, telegraph, &c.; the use and management of the rocket apparatus in the event of his vessel being stranded, and other questions of a like nature, appertaining to the duties of the Second Mate of a steam-ship, which the Examiners may think necessary to put to him.

66. AN ONLY AND FIRST MATE.—An Only Mate must be not less than nineteen years of age, and must have served five years at sea. A First Mate must be nineteen years of age, and must have served five years at sea, of which Only and First Mate.

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* *See* Appendix A. † *See* Appendix B. ‡ *See* Appendix C.
§ *See* Appendix D. ‖ *See* Appendix E.

one year must have been as Second or Only Mate of a Foreign-going Steam-ship. *See also paras.* 11, 16 *and* 27.

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last three years immediately preceding the date of his application to be examined

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

67. IN NAVIGATION.—In addition to the qualifications required for a Second Mate, an Only or First Mate must be able to find the true bearing of the sun and the error of the ship's compass from an observed azimuth of the sun both from an altitude and also from the "Time Azimuth Tables," and with the variation given compute the deviation; to find the latitude from a single altitude of the sun off the meridian, and to be able to use and adjust the sextant,* and to find the index error by the sun; and also to ascertain the true bearing of the sun, &c., and the ship's position by Sumner's Method by Projection.† He must also be conversant with the use of Mercator's Chart, and be able to find on either a "true" or "magnetic" chart,‡ the course to steer and the distance from one given position to another; and find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of ship from the object at the time of taking the second bearing. He must also understand how to keep a ship's Log Book. He will also be required to answer certain questions in writing (*and orally*) relating to cyclones or revolving storms.

68. IN SEAMANSHIP.—In addition to the qualifications required for a Second Mate, a more extensive knowledge of seamanship will be required, as to shifting large spars, rigging sheers, taking lower masts in and out, how to moor and unmoor ship and to keep a clear anchor, to carry out an anchor; how to manage a steam-ship in stormy weather, and how to rig purchases for getting heavy weights, anchors, machinery, &c., in and out. He must give satisfactory answers as to the ventilation of holds, and the stowage of explosives. He must be able to describe the effects of the screw race upon the rudder; and the effect produced on the direction of the head of the ship by going [ahead] [astern] with a [right] [left] handed screw when the rudder is [ported] [starboarded]. He must also know how to rig a sea anchor, and what means to apply to keep a steamer with machinery disabled out of the trough of the sea, and lessen her lee drift. How to turn a steam-ship short round; how to get cast of deep sea lead in heavy weather, and other questions of a like nature appertaining to the duties of an Only and First Mate of a steam-ship, which the Examiners may think necessary to put to him.

Master.

69. A MASTER—Must be not less than twenty-one years of age, and have been six years at sea, of which one year must have been as First or Only Mate in a Foreign-going Steam-ship, and one year as Second or Only Mate; or he must have been six and-a-half years at sea, of which two and-a-half years must have been as Second or Only Mate in a Foreign-going Steam-ship, during the last twelve months of which he must have been in possession of a First Mate's Certificate. *See also paras.* 11, 12 *and* 17.

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

70. IN NAVIGATION.—In addition to the qualification required for a Second, Only, and First Mate, he must be able

* *See* Appendix B. † *See* Appendix I. ‡ *See* Appendix F.
Also page 24 foot-note ‡.

to compute the latitude from the meridian altitude of a star, he must be able to find the magnetic bearing from equidistant compass bearings of any fixed object when at sea, and compute the deviation therefrom. He must construct a deviation curve upon a "Napier's" diagram which will be furnished by the Examiner, and understand the practical application of the same, and give satisfactory written (*and oral*) answers to certain practical questions on the effect of the ship's iron upon the compasses, the method of determining the deviation, and compensating same by magnets and soft iron * He will be required to find the course to steer by compass in order to counteract the effect of a given current, and find the distance the ship will make good towards a given point in a certain time, and to work out practically the correction to apply to soundings taken at a given time and place, to compare with the depth marked on the chart.†

71. In Seamanship, &c.—In addition to the qualifications required of a Second, Only, and First Mate, he must be able to construct rafts and jury rudders suitable for a screw steam-ship. He will be examined as to his resources for the preservation of the ship's crew in the event of wreck; as to the management of steam-ships in heavy weather; as to rescuing the crew of a disabled ship; as to steps to be taken when a ship is on her beam ends; or if disabled and on a lee shore. How to use steam appliances in the event of fire, and the best arrangement for towing vessels under different circumstances, placing ship in dry dock, directing repairs, and the mode of procedure if putting into port in distress with damage to cargo and ship. He must possess a sufficient knowledge of what he is required to do by law, as to entry and discharge, and the management of his crew, and as to penalties and entries to be made in the official log, and a knowledge of the measures for preventing and checking the outbreak of scurvy on board ship, and the law as to load line marks, and the entries and reports to be made respecting them. He will be questioned as to his knowledge of invoices, charter-party, bills-of-lading, Lloyd's agent, and as to the nature of bottomry; also bills-of-exchange, surveys, averages, &c., and answer any other questions of a like nature, appertaining to the management of a steam-ship, which the Examiners may consider it necessary to touch upon.

Service in Royal Navy.

72. Officers of the Royal Navy are at liberty to apply for Certificates of service and to be examined for Certificates of Competency in the Mercantile Marine, but they must submit their applications in the manner directed by the Lords Commissioners of the Admiralty. *Service in Royal Navy.*

73 Officers of the Royal Navy desirous of being examined for Certificates of Competency in the Mercantile Marine will be required to prove the following service, of which twelve months must have been sea service under sail alone.

74. For Second Mate.—A Candidate must produce satisfactory evidence of four years' service at sea, or that he has attained the rank of acting Sub-Lieutenant.

75. For Only Mate.—A Candidate must prove five years' service at sea.

76. For First Mate or Masters.—A Candidate must show that he has attained the rank of Sub-Lieutenant, or Navigating Sub-Lieutenant.

Voluntary Examination in the Laws of the Deviation of the Compasses of Iron Ships.

77. Any Master or Mate who wishes to pass a *voluntary* examination in the Syllabus* of examination on the Laws of the Deviation of the Compasses of an Iron Ship, &c., can at any time be examined upon filling up the form of application, and the payment to the Port Officer of the prescribed fee. If the candidate passes the examination successfully, an endorsement to that effect will be duly made upon the Master's or Mate's Certificate held by him. *Voluntary Examination of Masters and Mates in the Syllabus.*

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* *See* Appendices G and M. † *See* Appendix F. ‡ *See* Appendix A.

Failure.

Re-examination in case of failure

78. In all cases of failure the Candidate must be examined *de novo*. If a Candidate fails in *Seamanship* he will not be re-examined *until after a lapse* of SIX MONTHS. Whether the whole or part of this period must be served at sea must depend upon the subjects in Seamanship in which the Candidate failed, but what amount (if any) of sea service will be required will be left to the discretion of the Port Officer, subject, however, to revision by the Government, should they see fit.

79. The Examiners in making out their report on Form Exn. 14 should state what amount (if any) of further sea service the Candidate must perform, and they should also insert this information under Division H. in Form Exn. 2.*

80. If he fails three times in *Navigation* he will not be re-examined until after a lapse of THREE MONTHS from the date of the *last failure*.

Certificate of lower grade.

81. If a Candidate has failed in his Examination, but the subjects in which he has failed are not included in the subjects required for a Certificate of a lower grade, he may, if he desires it, receive a Certificate of such lower grade.*

82. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled, for re-examination for the higher grade of Certificate he will be required to pay a further full fee.

83. If a Candidate fails for bad spelling or writing, he will not be re-examined until after a lapse of at least three months.

84. If a Candidate fails in his examination for an ordinary Certificate, he may, if qualified, and upon payment of another fee, &c., be examined for a Certificate of Competency for Foreign-going Steam-ships without waiting the usual time after failure.

Fees.

85. Candidates for examination, in making their application on Form Exn. 2, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause, except failure to pass the colour tests, not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be, they will be allowed to again present themselves for examination for a Certificate of the same grade without paying any further fee.

Fees to be paid by applicants for examination, s. 133.

86. The fee for examination must be paid to the Port Officer. In any case in which a Candidate offers money to any other officer, and in any place but in the Port office, the Candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be again examined for twelve months.

87. If a Candidate fail in his examination *no part of the fee will be returned to him.*

88. The fees are as follow:—

FOR "FOREIGN-GOING SAILING AND STEAM SHIPS."

	Rs.
Second Mate	12
First and Only Mate, if previously possessing an inferior certificate, either granted by the Board of Trade, or by the Government of a British Possession *under section 8 of the "Merchant Shipping (Colonial) Act, 1869"*	6
If not	12
Master	24
Where a Candidate is in possession of a Certificate for Fore and Aft rigged Vessels, for an Ordinary or Steam-ship Certificate of the same grade	12

* *See* Appendix H.

FOR "VOLUNTARY EXAMINATION IN STEAM."

	Rs.
Mate (Only or First)	12
Master	12

FOR "VOLUNTARY EXAMINATION IN DEVIATION OF THE COMPASS."

	Rs.
Mate (Second, Only or First)... ...	12
Master	12

GENERAL.

89. Certificates of Competency shall be made and issued by the Government in the forms hereunto annexed.

90. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate and the other shall be kept and recorded by the Port Officer of Calcutta.

90A. No application from the holder of a certificate granted by the Government of any other British Possession or by the Board of Trade to be examined for a certificate of the same legal value shall be entertained.

General Instructions to Examiners and Candidates.

Prohibited books and papers.

91. All instruments necessary for use in the examinations are supplied by the Government.

92. Before commencing the examination, the tables or desks must be cleared of all scraps of paper, or books that are not used in the examination, and care should be taken that the candidates do not bring into the examination room any book, paper, document, or memoranda of any description whatever. No person whatever should be allowed in the room during the time of examination, but those whose duties require them to be present.

93. No instructors will be allowed on the premises.

Candidates not to leave premises during examination.

94. Candidates will under no pretence whatever be allowed to leave the premises while the examination is proceeding. If a Candidate has occasion to visit the retiring room he will only be allowed to do so on the completion of the paper on which he may be engaged, when he will be required to enter in a book, kept for the purpose, the exact time of his leaving and returning to the examination room. When only a few Candidates are under examination, two persons will not be allowed to leave the room at the same time.

Position of Candidates at examination.

95. Candidates should be so placed as to prevent one copying from the other, and no communication whatever between the Candidates should be allowed.

Blotting paper.

96. If any blotting paper is allowed it should be black; and when the first examination paper is issued each Candidate should be furnished with a piece which should be returned to the Examiner upon the completion of the last paper.

How examination papers should be issued.

97. The examination papers should be issued to the Candidates in half sheets only, and one at a time. This will prevent a Candidate from spreading out the sheets on the table in an apparently careless manner, but so as to enable his nearest neighbour to look over and copy, or examine the problems. It will also enable the Examiner to look over and report upon the work on one half sheet, while the Candidate is at work upon another, and so on. When the errors are not too numerous, or when they are not from ignorance of the subject, the incorrect problems may be returned to the Candidate for correction, but in no case should the errors be pointed out by the Examiner, neither should any marks be made on the correct work of the problem, which would at once indicate how far or to what extent the work is correct. Should the problems be returned to the Examiner the second time incorrect, this would be a failure; and as the time allowed is considered ample for working out the papers carefully, this rule is expected to be strictly observed.

In certain cases problems may be corrected on morning following examination day.

98. When from the large number of the Candidates, it may be found impossible to look over the work, on the day of examination during the office hours, an hour in the morning of the following day may be allotted for the purpose of correcting the problems, but in no case should a Candidate have his problem returned to him for correction after he has made the second attempt.

Re. Exn 4A

99. The paper (Exn. 4A) is only for those Candidates who present themselves for examination for the first time. It is intended not only to ensure on the part of the Candidate a knowledge of the meaning of a variety of terms of great use to the Navigator respecting which much ignorance exists at present, but at the same time to test his handwriting and spelling.

100. In using this paper, the Examiner will place a mark against the numbers of the particular questions which he selects for answers, and not less than ten questions should be selected. The Candidate will then write against the questions so marked his definition of the terms in a clear and legible hand, so as to prevent the possibility of any letter being mistaken. Attention should be paid to the spelling and writing of all grades of Candidates. The *supplementary vivâ voce* test should also be applied as usual.

Re-questions on Deviation of the Compass. (Exn. 7, Appendix G.)

101. In the questions on Deviation of the Compass (Exn. 7, Appendix G) the Examiner should indicate by a mark against at least twelve of the questions for answers, and those indicated must be correctly answered. The selected questions should be varied frequently, and no two Candidates should have precisely the same questions. The Candidate should be furnished with sheets of blank ruled paper which is supplied for that purpose with instructions that he is to write only on one side of the paper, and to answer each of the questions against which a mark is placed in a clear and legible hand, and to commence each answer by writing down the number of the question to which it relates in the margin left for that purpose. In answering question 19, besides giving a full explanation in writing, of the *tentative* method* of compass adjustment (accompanied by the usual *supplementary vivâ voce* test), the Candidates should be required to illustrate by diagrams how the poles of the magnets are placed with regard to the compass needle for correcting the semi-circular deviation, as well as the heeling error, and also how the soft iron should be placed for correcting the quadrantal deviation, or the Candidate may be tested by "Beall's Compass Deviascope," in which case it will not be necessary for him to give the written answer and sketches.

Vivâ voce examination.

102. In the *vivâ voce* examination a reasonable time should be allowed for the Candidate to give his answers. No assistance should be given or leading question put.

Adjustment of sextant.

103. Particular attention should be paid to the adjustments of the sextant, and the written answers should be given on the ruled paper in the same manner as the answers to the questions on Exn. 7, and the *supplementary vivâ voce* test applied as usual. Every Candidate should have a practical knowledge of what is known as the first three adjustments, and be able to read correctly *off* the arc, a supposed index error to be given by the Examiner as additive, as well as reading *on* the arc in the usual way.

Minor corrections.

104. All outstanding or minor corrections should appear in the margin of each problem paper; also on the chart papers Exn. 9C and Exn. 9D; and unless all these corrections appear on the papers of the Candidate they will not be considered complete.

Examination to commence with that for Second Mate.

105. In every case the Examination, whether for Only Mate, First Mate, or Master, is to commence with the problems for Second Mate.

Problems required as tests.

106. Examiners should bear in mind that the problems to be performed are required as tests, and for the purposes of an Examination, and not for sea-going or practical purposes alone.

107. The Candidates will be allowed to work out the various problems according to the method and the tables they have been accustomed to use.

Time allowed for Problems and Writings.

Time allowed for working problems.

108. *Candidates for Second Mates' Certificates of Competency* must complete the whole of their Examination in Navigation in *eight hours*, including the time allowed for writing the definitions (Exn. 4*a*), the paper on the adjustment of the sextant, and the correction of *all* errors and oversights; but

* See Appendix M.

the nautical problems on Forms "Exn. 4" and "Exn. 5" must be completed within *six hours*, and without the Candidates leaving the premises during that period.

109. *Candidates for Only and First Mates' Certificates* must complete the whole of their examination in Navigation in *twelve and-a-half hours*,* including the time allowed for the papers on the sextant; the chart; cyclones or revolving storms; and for the correction of *all* errors and oversights; but the nautical problems on Forms "Exn. 4," "Exn. 5," and "Exn. 6" must be completed within *six hours*, and without the Candidates leaving the premises during that period.

110. *Candidates for Certificates as Masters,' Ordinary*, must complete the whole of their examination in Navigation in *fifteen hours;* including the time allowed for the papers on the sextant; the chart; compass deviation; cyclones or revolving storms; and for the correction of *all* errors and oversights; but the problems on Forms "Exn. 4," "Exn. 5," and "Exn. 6," must be completed within *six hours*, and without the Candidates leaving the premises during that period.

111. *Candidates after finishing the problems required of the respective grades* on the first day of examination should proceed, until the end of that day, with such subjects as the definitions, sextant, chart, and Question 19 of Form "Exn. 7."

112. *The Sumner Problem* (*Exn. 6a*) must on no account be given out to any of the grades on the first day of the examination, but should be the commencement of the Candidate's work on the second day, and on completion of this problem the Candidates for Masters' Certificates should proceed with the problems on paper "Exn. 7."

113. *Candidates for Foreign-going Steam-ship Certificates of Competency* will be allowed the same amount of time to perform their navigation, &c., as hereinbefore laid down for the respective grades for the Ordinary Foreign-going Certificates.

114. *Deviation of the Compass.*—A period not exceeding eleven hours will be allowed to Candidates for the completion of the whole of the examination in the Syllabus, including the correction of all errors and oversights in both the problems and writings.

115. Punctually at the expiration of the prescribed time all the papers should be called up, whether completed or not, and if not completed, the Candidate will be declared to have failed, unless the Port Officer or the Examiner see fit to lengthen the period in any special case If, however, the period is lengthened in any case, the special circumstances of that case, and the reasons for lenthening the period, together with the time allowed, must be reported to the Government by the Examiners, in the column for "remarks" on the Form Exn 14. It should be noted that the periods prescribed in the foregoing paragraphs are not intended to include the time occupied by the *viva voce* part of the examination. Additional time allowed in special cases.

116. It is anticipated that but few of the Candidates for Certificates of Competency for any of the foregoing grades will require the whole of the time herein allowed for completing their Examination in Navigation; and ample time has been prescribed, so that Candidates may perform their work in a careful, clear, and legible manner, and to the entire satisfaction of the Examiners.

Degree of Precision required in the Solution of the Problems.

117. In order to prevent any misapprehension as to the degree of precision required by the Regulations in working out the various problems in the Examinations for Masters' and Mates' Certificates, the attention of Examiners and Candidates is particularly directed to the following Instructions:—

(*a.*) Candidates are expected to work out their answers to all problems within or not to exceed a margin of *one mile of position* from a correct result (*e.g.*, in problems where the answer required is a latitude, longitude, or distance), excepting in finding the

* A Candidate other than Second Mate who may not previously have passed an examination may be allowed the time occupied in writing his definitions on Exn. 4*a*, in addition to the above.

ship's position by "Sumner's" method, where a margin of 2½ miles will be allowed.

(*b.*) In such problems as the "Amplitude" and "Alt-Azimuth," where the bearings, deviations, &c, only are required, a margin of 2°, or 3°, from a correct result will be sufficiently accurate.

(*c.*) In no problem is the Candidate for an "ordinary" Certificate required by the Regulations to correct for *second differences* in taking out the quantities from the Nautical Almanac.

(*d.*) In solving the "Time Azimuth" problem, an answer not exceeding half a degree from the exact result will be sufficiently near. But in all cases the actual latitude, declination, and time used, together with the exact bearing (from the North or South) as given in the tables, must be clearly shown by the Candidate on his papers.

(*e.*) In interpolating for the correct deviation to be applied in solving the Chart question, Papers "Exn. 9 C." and "Exn. 9 D," it will usually be sufficiently near if the Candidate works throughout with the nearest degree of deviation taken from the "Deviation Card," and even in cases where the deviations may vary but little, the nearest half degree used throughout will be sufficiently precise, and will at the same time prove whether the Candidate understands the method of arriving at the amount of, and applying, deviations. It is not necessary that the Candidate should waste his time in solving the course to *odd minutes* as is sometimes done.

(*f.*) In calculating the correction to apply to the Soundings, Question 5 of Paper "Exn. 9 D," the Candidate is not required to work out to the exact inch, as is sometimes done. It will be sufficiently near if he brings his answer within half a foot or so of a precise result.

It must be clearly understood in reading the foregoing Instructions that it is always provided the work of the Candidate is correct in principle.

Supplementary viva voce *Examination on written Papers.*

118. An impression prevails in regard to the examination of Masters and Mates, that so long as a Candidate can commit to paper correct answers to the various questions requiring written answers (*e.g., Forms Exn. 4a, Exn. 7, Exn. 9a, Exn. 9c, Exn.* 32. 70, *&c.*), no matter how indicative the answers may be of their having been learnt off by rote *only*, the duty and responsibility of the Examiners are at an end, and that they have no power or authority to reject a Candidate should his written answers be correct.

119 Lest, therefore, such an impression should prevail, Candidates for Certificates of Competency should bear in mind that they are not only expected to give correct written answers, which may merely be learnt off by rote, but they are expected to possess an intelligent knowledge of the various subjects prescibed in the Regulations, particularly as regards the important subject of the Deviation of the Compass.

120. This result may be easily attained by the Examiner putting a few *viva voce* questions to the Candidate as the papers are brought up for inspection, or at any subsequent time if more convenient. The oral questions (suggested by the printed questions and the answers given) should be such that the Examiner may satisfy himself that the candidate possesses a real knowledge of what he has written, and should be confined strictly to the subjects of the printed questions. Should the candidate then exhibit ignorance of the subjects, the Examiner (who is in a position to judge of the real knowledge the man before him possesses) should deal with him at his discretion, notwithstanding that the candidate may have written all the answers correctly by rote.

121. When an Examiner finds it necessary to fail a Candidate in this *supplementary viva voce* test, a memorandum containing the particulars of the points on which the candidate was ignorant, *i.e., the identical questions and the identical*

answers given, must in each case be attached to his examination papers, when forwarded in the usual course to the Port Officer, or the particulars may be set forth by the Examiner in the margins of the candidate's papers in red ink.

122. If the Candidate passes, he will receive the Form Exn. 16, upon which the Government, will issue the Certificate to the candidate, whose testimonials, &c., will be returned at the same time. Form Exn. 16 Completion of examination

Special Notice to Candidates.

123. The attention of Candidates is specially called to the following Regulations :—

124. Candidates are required to appear at the examination-room punctually at the time appointed.

125. Candidates are prohibited from bringing into the examination-room books, paper, or memoranda of any kind whatever. The slightest infringement of this regulation will subject the offender to all the penalties of a failure, and he will not be allowed to present himself for re-examination for a period of three months.

126. In the event of any Candidate being detected in defacing, blotting, writing in, or otherwise injuring any book or books belonging to the Government, the papers of such Candidate will be detained until the book or books so defaced be replaced by him. He will not, however, be at liberty to remove the damaged book, which will still remain the property of the Government.

127. In the event of any Candidate being discovered referring to any book or memoranda. copying from another, or affording any assistance or giving any information to another, or communicating in any way with another, during the time of examination or copying any part of the problems for the purpose of taking out of the Examination rooms, he will subject himself to all the penalties of a failure, and he will not be allowed to be examined for a period of six months.

128. No Candidate will be allowed to work out his problems on a slate or on waste paper.

129. No Candidate will be permitted to leave the room until he has given up the paper on which he is engaged.

130. Candidates will find it more convenient both here and at sea, to correct the declination and other elements from the Nautical Almanac by the " hourly differences." which have been given in that work in order to facilitate such calculations ; they will thereby render themselves independent of any proportional or logarithmic table for such purpose.

131. The corrections by inspection from tables given in some of the works on Navigation will not be allowed (*see* Tables IX, XI and XXI in Norie's Epitome, &c.) ; every correction must appear on the papers of the Candidates.

132. Any candidate who may be guilty of insolence to the Examiner or of other misconduct will render himself liable to the postponement of his examination, or, if he has passed, to the detention of his Certificate for such period as the Government may direct

133. For rules as to amount of time allowed to perform the work, *see* page 36.

Masters' and Mates' Voluntary Examinations in Steam.

134. These examinations are limited to Masters and First or Only Mates who are possessed of or entitled to Certificates of Competency, and are provided for the purpose of giving them an opportunity of undergoing a voluntary examination as to their practical knowledge of the use and working of the steam engine. They are conducted under the superintendence of the Port Officer at such times as they may appoint for the purpose ; and the Examiners are selected by the Government from the Engineer-Surveyors appointed under the Indian Steam Ships Act, 1884. *Voluntary Examinations in Steam.*

135. Any Master or Mate desiring to be examined in Steam must deliver to the Port Officer a statement in writing to that effect, upon the Form of Application (Exn. 2), and the applicant's Certificate of Competency must be delivered to the Port Officer along with his statement. If he is about to pass an examination for a Certificate of Competency at the same time, the applications should be sent in together. Application, how to be made. Exn. 2.

136. A fee of Rs. 12 must be paid by the applicant for the examination *in Steam*, and the Port Officer will thereupon inform him of the time and place at which he is to attend to Fee to be paid. Conduct of examination, &c.

be examined, and the examination will then and there proceed in the same manner as the other examinations. If the applicant fails, and has given in his Certificate, it will be at once returned to him.

Record of Certificate. Exn. 14.

137. If the applicant passes, the Report (Exn. 14.) and the Certificate of Competency with the Form (Exn. 2.) will be sent to the Government; the words "*Passed in Steam,*" with the date and place of examination, will then be entered on the Certificate and its counterpart, and the Certificate will be sent to the Port Officer to be delivered to the applicant in the usual manner.

Failure.

138. If the applicant fails he may not present himself for re examination until the expiration of three months from the date of failure.

Extent of examination.

139. The examination is for the most part *vivâvoce*, and extends to a general knowledge of the practical use and working of the steam engine, and of the various valves, fittings, and pieces of machinery connected with it. Intricate theoritical questions on calculations of horse power or areas of cylinders and valves, or any of the more difficult questions which appertain to steam engines and boilers, will not be asked. The examination will in fact be confined to what a Master of a steam-vessel may be called upon to perform in the case of the death, incapacity, or delinquency of the engineer.

140. Examiners are to be careful in their examinations to satisfy themselves that applicants really do know the names and uses of the various parts of engines and boilers, and their connecting pipes, valves, cocks, &c. Practical knowledge, as distinguished from theories, abstruse calculations, and book learning is to be the test of the applicant's fitness to have his Certificate indorsed.

Where examination to be conducted

141. The Examiner should arrange to conduct part of the examination in the engine-room of a Steam-ship, unless from circumstances he finds it impossible to do so; and if an opportunity offer the applicant should be permitted, under the guidance of the Examiner, to start and stop the engine of some vessel which may have her steam up.

142. The Examiner, in sending in his report of examinations of Masters and Mates in steam, should state where the examination has been held.

Examination in elementary questions.

143. Candidates will be required to give written answers to sixteen out of twenty questions taken from a book of Elementary Questions pulished by the Government.* These questions will be altered from time to time without notice. The twenty questions are not to be difficult, theoretical, or book questions, but are to be such as any man of ordinary capacity ought to answer who has any "*practical knowledge of the use and working of the steam-engine.*"

Answers to be sent to the Board of Trade.

144. These questions, with the Candidate's answers, should be sent to the Government, with the reports, after each examination

145. These answers will also assist in enabling the Government to decide any question that may hereafter arise in cases where it is alleged that applicants have been improperly passed, or improperly rejected.

Candidates referring to books, &c., to be put down as failed.

146. The Examiners will be careful that if any Candidate refers to any book or paper or memorandum, or obtains information from another Candidate during the examination, he will be treated as having failed, will forfeit his fee, and will not be allowed to be re-examined for a period of three months.

In cases of failure Examiner to report questions that decided it.

147. The Examiners will report in the case of failure, the nature of the question or questions that decided the failure, or the point in the management of the engine in which the Candidate was deficient.

Service on board Steam-Ship unnecessary.

148. There is nothing in the Regulations requiring that applicants for the voluntary examination shall have served on board Steam-Ships; all that is required is that they shall have a "practical knowledge." Examiners will, of course, not fail to appreciate the fact, when passing applicants, that practical knowledge is best gained in the engine-room; and the examination of an Officer who does not produce official evidence of service in Steam Ships, and of experience of engines, must necessarily be more searching than in the case of one who produces evidence of such service and experience.

See Appendix. Q.

APPENDIX A.

N.B.—*The Candidate is to write a short definition against so many of the following terms as may be marked with a cross by the Examiner. The Examiner will not mark less than* 10. *The writing should be clear, and the spelling should not be disregarded.*

1. The Equator.
2. The Poles.
3. A Meridian.
4. The Ecliptic.
5. The Tropics.
6. Latitude.
7. Parallels of Latitude.
8. Longitude.
9. The Visible Horizon.
10. The Sensible Horizon.
11. The Rational Horizon.
12. Artificial Horizon and its use.
13. True Course of a Ship.
14. Magnetic Course.
15. Compass Course.
16. Variation of the Compass.
17. Deviation of the Compass.
18. The Error of the Compass.
19. Lee Way.
20. Meridian Altitude of a Celestial Object.
21. Azimuth.
22. Amplitude.
23. Declination.
24. Polar Distance.
25. Right Ascension.
26. Dip or Depression of the Horizon.
27. Refraction.
28. Parallax.
29. Semi-diameter.
30. Augmentation of Moon's Semi-diameter.
31. Observed Altitude.
32. Apparent Altitude.
33. True Altitude.
34. Zenith Distance.
35. Vertical Circles.
36. Prime Vertical.
37. Civil Time.
38. Astronomical Time.
39. Sidereal Time.
40. Mean Time.
41. Apparent Time.
42. Equation of Time.
43. Hour Angle of a Celestial Object.
44. Complement of an Arc or Angle.
45. Supplement of ditto.

APPENDIX B.

ADJUSTMENTS OF THE SEXTANT.

The Applicant will answer in writing, on paper which will be given him by the Examiner, all the following questions, numbering his answers with the numbers corresponding to the questions :—

Question.

1. What is the first adjustment of the sextant ?
2. How do you make that adjustment ?
3. What is the second adjustment ?
4. Describe how you make that adjustment ?
5. What is the third adjustment ?
6. How would you make the third adjustment ?
7. In the absence of a screw how would you proceed ?
8. How would you find the index error by the horizon ?
9. How is it to be applied ?
10. Place the index at error of minutes to be added, clamp it, and leave it.

    (NOTE.—The Examiner will see that it is correct).

11. The Examiner will then place the zero of the vernier on the arc, not near any of the marked divisions, and the Candidate will read it.

    NOTE.—In all cases the applicants will name or otherwise point out the screws used in the various adjustments.

(*The above completes the Examination of Second Mates.*)

Candidates for Only Mates', First Mates', and Masters' Certificates will be required to give, in writing, replies to the following questions, *in addition* to those required of Candidates for Second Mates' Certificates as above.

1. How do you find the index error by the Sun ?
2. The readings being { } What is the Index Error, and how do you apply it ?
3. What proof have you that those measurements or angles have been taken with tolerable accuracy ?

APPENDIX C.

EXAMINATION OF MASTERS AND MATES IN THE INTERNATIONAL CODE OF SIGNALS.

Instructions to Examiners.

The Government desire to direct the attention of the Examiners to the principal points connected with the International Code of Signals (which is to be treated as a subject in Navigation) as to which Candidates for Examination should be questioned in order to qualify for Certificates of Competency.

The Government would recommend to the Examiners a perusal of the *Report of the Signal Committee* of 1855 (which will be found at the commencement of the Signal Book), and also the *first few pages of the Book*. The information therein given will be found sufficient to make the Examiners theoretically acquainted with the characteristics of the Code, and the advantages it claims to possess over other Codes, and will enable them to appreciate and urge upon Candidates for Examination the facilities which this System of Signalling affords for easy and rapid communication.

The "comprehensiveness" and "distinctness" of the International Code are its chief recommendations.

The form of the Hoist generally indicates the nature of the Signal made, so that an observer can at sight understand the character of the Signal he sees flying.

The annexed plate gives examples which illustrate this.

The Examinations should tend to elicit a knowledge of the distinctive features of the Code above alluded to.

With this object the Examiners should make the 2, 3, and 4 Flag Signals on the Frame board which is furnished for the purpose *(always taking care first to show the Ensign and the Code Pennant at the Gaff)*,* questioning the Candidates as to the distinguishing Forms of the respective Hoists *(See Plate annexed)*, which will be indicated according as a Burgee, or a Pennant, or a Square Flag, is uppermost.

The Candidate ought to know how to find in the Signal Book the communication or the inquiry he desires to make, and how to make the Signal. The Signal to be made should *invariably* be sought for by the Candidate in the Vocabulary and Index, Part II, and never in Part I.

The Candidate ought to know how to interpret a Signal.

The Examiner should place a Signal on the Frame board and vary the Signal by showing a 2 or 3 Flag Signal, or a "Geographical" or a "Vocabulary" Signal, or the name of a Merchant Ship or a Ship of War.

The two latter signals would not of course be found in the Signal Book. The Candidate ought to point them out in the *Code List of Ships*.

A Candidate ought to be able to read off a Signal at sight, so far as to name the Flags composing the Hoist.

He ought to know the use of the Code Pennant, and of the Pennants C. and D., "Yes" and "No."

The Candidate should be practised in the use of the Spelling Table, by being made to spell his own name, or some word not in the Vocabulary of the Code.

A knowledge of the Distant Signals should be required of the Candidate, their object and the mode of signalling by the Distant Code, which will be found at the end of the Signal Book.

For this purpose two Black Balls, two Black Square Flags, and two Black Pennants will be furnished with the Frame board, and the Candidate should be required to make one or two Distant Signals, and to read off one or two made by the Examiners.

The Ball being the distinguishing symbol of the Distant Signal, any Pennants or Flags of the Code may be employed in conjunction with it, irrespective of colour. The Black Pennants and Flags are merely sent as showing best in the light background of the Frame board.

The Examiners should be careful to ascertain that the Candidate possesses a knowledge of the Distress Signals which came into operation November 1st, 1873.

Semaphores.

A plate at the end of the Signal Book explains the method by which the arms of the Semaphore are made to represent by their position (up, down, or horizontal,) the three symbols used for Distant Signalling, viz. a Flag, a Ball, or a Pennant. Before making Signals with the Semaphore, the Black Disc with the white rim should be placed on the top of the Semaphore Mast, as it properly forms a part of the Mast itself.

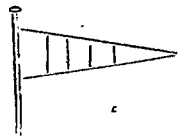
The International Code is used on board Her Majesty's Ships and it has been adopted by all the principal maritime powers for their Imperial as well as for their Mercantile Navies.

Note.—The International Code of Signals, with the Code List, is prepared by the Registrar-General of Shipping and Seamen, and may be had of the Publishers, Messrs. Spottiswood & Co., 54, Gracechurch Street, London, and the principal Booksellers at the various ports.

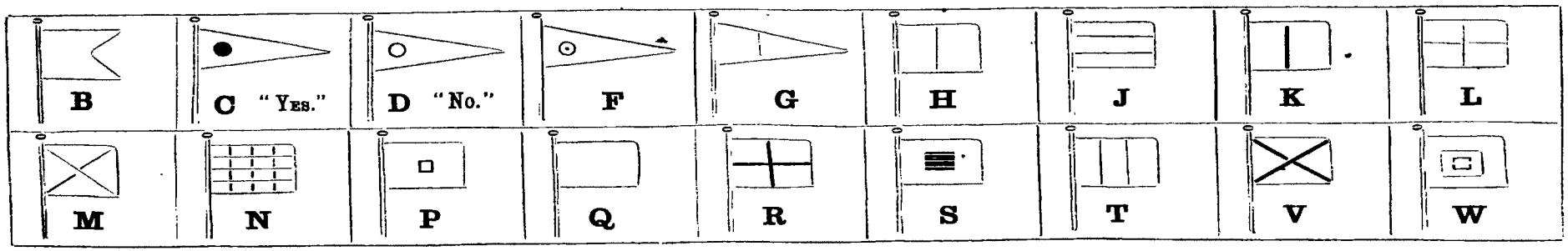
The Official Mercantile Navy List and Maritime Directory published for the use of Merchants, Shipowners, Shipbrokers, and others, may be obtained in like manner, price 12*s*.

* The object of this is, of course, to distinguish the Signals from those of another Code.

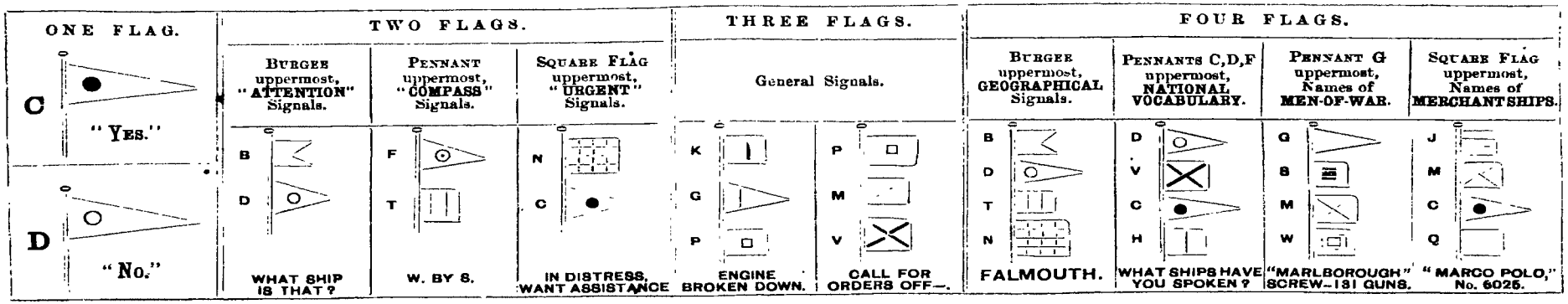
FLAGS OF THE INTERNATIONAL CODE OF SIGNALS.

"CODE SIGNAL" AND  "ANSWERING PENNANT."

N.B.—When used as the "Code Signal," this Pennant is to be hoisted under the "Ensign;" when used as the "Answering Pennant," where best seen.



The following examples will serve to illustrate how the *form of a Hoist* will usually denote the *nature of the Signal* made :—



APPENDIX D.

Regulations respecting Lights and Fog Signals and Steering and Sailing Rules Issued by the Board of Trade.

NOTICE.

The Board of Trade have had their attention drawn to the necessity of a more strict examination of applicants for Certificates of Competency in their knowledge of the regulations for preventing collisions at sea.

In order that the rule of the road at sea may be better understood, and that a uniform system of examination may prevail, the Board of Trade have issued the following catechism.

This catechism has received the approval of the Trinity House and Admiralty in England, and of the Council of the Admiralty of France.

The Board of Trade attach very great importance to a thorough knowledge of the steering and sailing rules on the part of every applicant for a Certificate of Competency, and a thorough examination on the part of the examiners.

All applicants for examination, whether for certificates as masters or mates, are to be examined as to their knowledge of the steering and sailing rules each time they present themselves for examination.

Questions suggested by the following heads of Examination are to be asked in addition to, and are not to supersede, any other questions proper and necessary to be asked by the Examiner.

The following questions need not be adhered to literally by the Examiner, and are not all to be asked ; but the substance of the leading questions should be asked, and all that are asked should be satisfactorily answered, before an applicant is reported to have passed his examination. The Examiner should make such a selection of the questions as each case appears to him to require.

Thomas Gray,
Assistant Secretary.

Board of Trade,
Marine Department.

Heads of Examination in Regulations respecting Lights and Fog Signals and in the Steering and Sailing Rules.

1. What light or lights are required by the regulations to be exhibited by sailing vessels at anchor ?

One light only, viz., a white light.

2. What light or lights are required by the regulations to be exhibited by steam-ships at anchor ?

The same as for sailing vessels.

3. Where is the anchor light to be exhibited ?

Where it can best be seen. It must of course be placed where there is the least possible chance of obstruction from spars, ropes, &c., &c.

4. To what height may the anchor light be hoisted ?

It may be exhibited at any height where it can best be seen not exceeding 20 feet above the deck.

5. What is the description of the lantern containing the anchor light required by the regulations ?

A globular lantern of not less than eight inches in diameter.

6. In what direction or directions must the anchor light show ?

It must show a clear, uniform, and unbroken light, visible all round the horizon.

7. At what distance must it be visible ?

At least one mile.

8. What is the number of lights required by the regulations to be carried by sailing ships when under weigh at night ?

Two side-lights, and to have in readiness a white light or a flare-up light to show from their stern to any vessel overtaking them.

9. Of what colour are these lights, and how are they to be placed on board the ship ?

A green light on the starboard side, and a red light on the port side.

10. What description of light must be shown from the sides of sailing vessels under weigh ; and over how many points of the compass, and in what directions, and how far, are they required to show ?

Each light must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass ; so fixed as to throw the light from right ahead to two points abaft the beam on the starboard and port sides respectively ;

and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

11. What lights are they to carry when being towed at night ?

The same.

12. Are the side-lights required to be fitted with screens ; and if so, of what length, and how ?

Yes on the inboard side ; at least three feet in length, measuring forward from the light. They are to be so fitted as to prevent the coloured lights from being seen across the bows.

13. What is the number of lights required by the regulations to be carried by steam-ships when under steam at night ?

Three lights, and to have in readiness a white light or flare-up light to show from their stern to any vessel overtaking them.

14. Of what colour are these lights, and how are they to be placed on board the ship ?

A white light on or in front of the foremast at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth. A green light on the starboard side, and a red one on the port side.

15. Over how many points of the compass, in what direction, and how far, is the foremast-head light of a steamer required to show ?

Over 20 points, viz., from right ahead to two points abaft the beam on both sides. It must be of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

16. Are the side-lights required to be fitted with screens ; and if so, of what length ?

The green and red lights are to be fitted with screens on the inboard side, extending at least three feet forward from the light, as in the case of sailing vessels.

17. Over how many points of the compass, in what directions, and how far, are the coloured side-lights of steamers required to show ?

The side-lights must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass, on each side of the ship, *i.e.*, from right ahead to two points abaft the beam on the starboard and port sides respectively, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles.

18. What description of lights are steamers required by the regulations to carry when they are not under steam, but under sail only ?

Side-lights only, the same as sailing vessels.

19. What exceptional lights are to be carried by small sailing vessels in certain cases ?

Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use ; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

20. What description of lights are pilot vessels required to carry when on their stations on pilotage duty ?

A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

21. What description of lights are pilot vessels required to carry when not on their station on pilotage duty ?

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

22. What lights are open boats and fishing vessels of less than 20 tons net register required to carry when under way and not actually engaged in fishing.

Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights ; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

23. What lights are fishing vessels and fishing boats of 20 tons net register, or upwards, required to carry when under way and not actually engaged in fishing?

They must carry similar lights to those of other ships when under way.

24. What lights are steam trawlers of 20 tons gross register, or upwards, whilst actually engaged in trawling, and not being stationary, required to carry?

All steam-vessels engaged in trawling must carry either one of the two following arrangements of lights, whichever of the two may be the more convenient:—

(*a*) The usual green and red side-lights, and foremast-head light, similar to those carried by other steam-ships; or

(*b*) They must carry on or in front of the foremast-head, and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side; such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: and (2) a white light in a gobular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform, and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet, nor more than 12 feet.

25. What lights are sailing trawlers whilst actually engaged in trawling, and not being stationary, required to carry?

All sailing vessels, of whatever tonnage, whilst engaged in trawling, must carry either one of the three following arrangements of lights, whichever of the three, (*a*), (*b*), or (*c*), may be the most convenient:—

(*a*) They may carry the green and red side-lights similar to those of other sailing ships; or

(*b*) They may carry on or in front of the foremast-head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side and the red light from right ahead to four points abaft the beam on the port side; and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet; or

(*c*) They may carry a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon, and visible on a dark night, with a clear atmosphere, for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by, another ship or vessel in sufficient time to prevent collision.

26. What lights are vessels whilst actually engaged in drift net fishing required to carry?

All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than 5 feet and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character and contained in lanterns of such construction as to show all round the horizon, on a dark night, with a clear atmosphere, for a distance not less than three miles.

27. What lights are vessels whilst actually engaged in line fishing required to carry?

A vessel engaged in line fishing is required to carry the same lights as a vessel engaged in drift net fishing.

28. If a vessel, when fishing, becomes stationary in consequence of her gear getting fast to a rock or other obstruction, what signal must she make?

She must show the same light, and if a fog, mist, or falling snow prevail, she must make the same fog signals as if she were at anchor.

29. What lights are fishing vessels and open boats required to exhibit when at anchor?

Between sunset and sunrise they must exhibit a white light, visible all round the horizon at a distance of at least one mile, the same as any other vessel.

30. What sound signals are fishing vessels required to make whilst engaged in fishing in thick weather?

In fog, mist, or falling snow, a drift net vessel attached to her nets, and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

31. May fishing vessels and open boats use flare-up lights, and if so, at what part, or parts, of the vessel should they be exhibited?

Yes. Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

32. Do these regulations referring specially to fishing vessels and boats apply to foreign vessels, and to all parts of the world?

No, with the exception of the *first paragraph* of Article 10 of the regulations, they apply only to British vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre.

33. What lights are steam-ships required to carry when towing other ships?

A steam-ship, when towing another ship, shall, in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light which other steam-ships are required to carry.

34. What light is a ship which is being overtaken by another required to show?

A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

35. Describe the lights and the day signals that vessels employed in laying or picking up a telegraph cable are required to carry.

A ship, whether a steam-ship or a sailing ship employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line over one another, not less than six feet apart: the highest and lowest of these lights shall be red and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than her foremast-head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

36. Describe the lights and the day signals that vessels which from any cause are not under command are required to carry.

A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same

position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles ; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of but not lower than her foremast-head, three black balls or shapes, each two feet in diameter.

37. Are the above-mentioned ships to carry side-lights ?

The above ships, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

38. What are the previous mentioned shapes and lights intended to indicate to approaching ships ?

These shapes and lights are to be taken by approaching ships as signals that the ship using them is not under command, and cannot therefore get out of the way.

39. Do these rules prevent squadrons and convoys from carrying special lights ?

No. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war, or for ships sailing under convoy.

40. What sound signals are steam-ships and sailing ships required by the regulations to be provided with ?

A steam-ship shall be provided with a steam whistle or other efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by bellows or other mechanical means, and also with an efficient bell. A sailing ship shall be provided with a similar fog-horn and bell.

41. When are these signals to be used ?

In fog, mist, or falling snow, whether by day or night.

42. What sound signal is to be made by steam-ships and sailing ships when not under way ?

A steam-ship and a sailing ship when not under way shall, at intervals of not more than two minutes, ring the bell.

43. What sound signal is required to be made by a steam-ship when under way ?

A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

44. What sound signals are required to be made by sailing ships when under way ?

A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

45. Do the regulations require ships to take any other precaution during thick weather ?

Yes. Art. 13 says every ship, whether a sailing ship or steam-ship, shall, in a fog, mist, or falling snow, go at a moderate speed.

46. Is it optional for a steam-ship to make any other signals with her steam whistle ?

Yes; but only to vessels in sight, *i.e.*, not to vessels which are so obscured by fog, mist, or falling snow that they cannot be seen, though their whistles may be heard.

Art. 19 provides that in taking any course authorised or required by the regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.:—

One short blast to mean "I am directing my course to starboard :"

Two short blasts to mean "I am directing my course to port : ".

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

47. What precaution is to be taken by steamers approaching another vessel ?

If there is risk of collision, the steamer is to slacken speed, or, if necessary, stop and reverse.

48. If you see two white lights in a vertical line one over the other, what do they denote as regards the vessel carrying them ?

They denote the presence of a steamer towing with her side lights not within sight on account of distance, fog, &c. ; or a vessel end on to me engaged in drift net fishing, or in line fishing, or it may be a steam trawler end on, or within 2 points of being end on, to me.

49. If you see a green, or a red, light with a white light below, what do they denote?

They denote the presence of either a sailing, or a steam, vessel engaged in trawling.

50. If you see both the green and red lights with a white light below them, what do they denote?

They denote the presence of a sailing trawler coming end on to me.

51. If you see a white light alone, what does it denote as regards the ship carrying it?

It denotes the presence of a vessel or boat at anchor; or a pilot vessel on her station; or the mast-head light of a vessel, under steam, with her side-lights not within sight on account of distance, fog, &c., or a fishing vessel stationary through her gear getting fast to some obstruction, or a sailing traveller engaged in trawling (1) under one arrangement of lights heading so that her side-lights or obscured, (2) under another arrangement from the red pyrotechnic light not having been exhibited, or it may be a light shown from the stern of a vessel which is being overtaken.

52. If you see a green or a red light without a white light, or both a green and a red light without a white light, is the vessel carrying the light or lights seen, a vessel under steam or a vessel under sail?

A vessel under sail.

53. How do you know?

Because there is no white mast-head light.

54. If you see a white light over a coloured light, is the vessel a vessel under sail or a vessel under steam?

A vessel under steam. The mast-head light denotes that the vessel is under steam.

[The Examiner will then take one model of a vessel, which he will place on the table, and call it A. He will then take the mast or stand with a white and a red ball on it, and place it at the other end of the table and call it B.

The Examiner should be careful that the model of one vessel only is used when the questions numbered 55 to 60 are asked.]

55. A is a steamer going north, seeing a white light and red light right ahead at B. Are A and the vessel B showing the two lights meeting end on or nearly end on, or is B passing A, or is B crossing the path of A, and in what direction, and how do you know?

Passing to port, because if I see a red light ahead, I know that the head of the vessel carrying that red light must be pointing away in some direction to my own port or left hand. The ship showing the red light has her port or left side more or less open to A.

56. If A is going north, within what points of the compass must the vessel B showing the white and red lights be steering?

B must be going from a little W. of S. to W.N.-W.

57. How do you know this?

Because the screens being properly fitted, I could not see the red light of B at all with the vessel's head in any other direction.

58. A is a steamer going north, and seeing a white and green light ahead. Are A and B meeting, or is B passing A, or is B crossing the course of A, and in what direction; and how do you know?

B is passing to starboard of A, because if I see a green light ahead, I know that the head of the vessel carrying that green light must be pointing away in some direction to my starboard or right hand. The ship showing the green light has her right or starboard side more or less open to me.

59. As A is going north, within what points of the compass must the vessel showing the white and green lights be steering?

B must be going from a little E. of South to E.N.-E.

60. How do you know?

Because the screens being properly fitted, I cannot see the green light at all with the vessel's head in any other direction.

61. If a steamer A sees the *three* lights of another steamer B ahead or nearly ahead, are the two steamers meeting, passing, or crossing?

Meeting end on, or nearly end on.

62. Do the regulations expressly require the course of a ship to be altered to starboard in any case; and if so, when?

Yes; in the case of two steamers meeting end on, or nearly end on.

63. Do they expressly require the course of a ship to be altered to starboard in any other case; and if so, in what other?

No. It is not in any other case expressly required by the regulations.

[The Examiner should see that the candidate puts the models in the position indicated by the question 64, and following.]

64. If a steamer A sees another steamer's red light B on her own starboard side, are the steamers meeting, passing, or crossing; and how do you know?

Crossing, because the red light of one is opposed to the green light of the other; and whenever a green light is opposed to a red light, or a red light to a green light, the ships carrying the lights are crossing ships.

65. Is A to stand on; and if not, why not?

A has the other vessel B on her own starboard side. A knows she is crossing the course of B, because she sees the red light of B on her (A's) own starboard side. A also knows she must get out of the way of B, because Article 16 expressly requires that the steamer that has the other on her own starboard side shall keep out of the way of the other.

66. Is A to starboard or to port in such a case?

A must do what is right so as to get herself out of the way of B: it is generally preferable to pass under a ship's stern rather than attempt to cross her bows, but it depends entirely on the position and relative speed of the two ships, and therefore the regulations wisely leave the giving way ship to get out of the way in any manner that may be most desirable, so always that she does get out of the way.

67. If A gets into collision by porting, will it be because she is acting on any rule?

No; the rule does not require her either to port or to starboard. If she ports, and gets into collision by porting, it is not the fault of any rule.

68. If a steamer A sees the green light of another steamer B on her own (A's own) port bow, are the two steamers meeting, passing, or crossing; and how do you know?

Crossing, because the green light of one ship is shown to the red light of the other.

69. What is A to do, and why?

By the rule contained in Article 22 of the Regulations, A is required to keep her course, subject only to the qualification that due regard must be had to all dangers of navigation; and that due regard must also be had to any special circumstances which may exist in any particular case rendering a departure from that rule necessary in order to avoid immediate danger. The crossing ship B on A's port side must get out of the way of A, because A is on B's starboard side.

70. A, a steamer, sees the green light of another steamer, B, a point on her A's port bow. Is there any regulation requiring A to port in such a case; and if so, where is it to be found?

There is not any.

71. Are steam-ships to get out of the way of sailing ships?

If a steamer and a sailing ship are proceeding in such direction as to involve risk of collision, the steamer is to get out of the way of the sailing ship, unless the sailing ship is overtaking the steamer.

72. What is to be done by A, whether a steamer or a sailing ship, if overtaking B?

A is to keep out of the way of B.

73. When the by rules one of two ships is required to keep out of the way of the other, what is the other to do?

To keep her course. This is absolutely necessary to enable the commander of the ship required by the regulations to keep out of the way, to act with decision and promptitude, which he cannot possibly, unless he knows what the other vessel is going to do.

74. Is there any qualification or exception to this?

Yes. Due regard must be had to all dangers of navigation, and to any special circumstances which may exist in any particular case, and require a departure from the regulations to avoid immediate danger.

75. Is there any general direction in the steering and sailing rules; and if so, what is it?

Yes, it is this: that nothing in the rules shall exonerate any ship, or the owner, master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

76. Can you repeat article (———) of the regulations, I refer to the article containing the rule for (———)?

[The Examiner should repeat this question, naming a different article each time.]

77. What does the Act of Parliament provide as to the obligation of owners and masters in obeying the regulations respecting lights, fog signals, and steering and sailing?

Section 27 of "the Merchant Shipping Act Amendment Act, 1862," provides that owners and masters shall be bound to obey the regulations, and it also provides that in case of wilful default

by the master or owner he shall be deemed to be guilty of a misdemeanor for each infringement.

78. What do breaches of the regulations imply ?

If an accident happens through non-observance of the regulations, it implies wilful default on the part of the person in charge of the deck at the time, unless it is shown to the satisfaction of the court hearing the case that the special circumstances of the case rendered a departure from the rules necessary.

79. If collision ensues from a breach of there gulations, who is to be deemed in fault for the collision ?

The person by whom the regulations are infringed, unless the court hearing the case decides to the contrary.

80. Is there any special rule for steam-ships navigating narrow channels ?

In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which is on the starboard side of such ship.

81. Do the regulations apply to sea-going ships in harbours and in rivers ?

Yes: unless there is any rule to the contrary made by a competent authority.

82. Do they apply to British ships only ?

No, to foreign ships as well, with the exception of paragraphs (*a*), (*b*), (*c*), (*d*), (*e*), (*f*) and (*g*) of Article 10, which apply to only British fishing vessels.

83. Do you know where the present regulations are to be found ?

Yes, in the Orders in Council of the 11th August 1884, the 30th December 1884, and 24th June 1885. Copies are given away on application to the Board of Trade.

84. Is one ship bound to assist another in case of collision ?

Yes.

85. What is the penalty for default ?

If the master or person in charge of the ship fails to render assistance without reasonable excuse, the collision is, in absence of proof to the contrary, to be deemed to be caused by his wrongful act, neglect, or default.

86. Is there any other penalty attached to not rendering assistance ?

Yes. If it is afterwards proved that he did not render assistance, his certificate may be cancelled or suspended by the court investigating the case.

87. Is it not expected that you should understand the regulations before you take charge of the deck of a ship ?

It is.

88. Why ?

If I do not understand them and am guilty of default, the consequences will be very serious to me.

89. What would be a serious offence ?

To cause a collision by porting the helm or doing anything not required by the regulations and without due consideration.

Regulations for preventing collisions at sea. Order in Council of 11th August 1884.

Preliminary.

Art. 1. In the following rules every steam-ship which is under sail and not under steam is to be considered a sailing ship ; and every steam-ship which is under steam, whether under sail or not, is to be considered a ship under steam.

Rules concerning Lights.

Art. 2. The lights mentioned in the following Articles, numbered 3, 4, 5, 6, 7, 8, 9, 10 and 11, and no others, shall be carried in all weathers, from sunset to sunrise.

Art. 3. A sea-going steam-ship when under way shall carry—

(*a*) On or in front of the foremast, at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth, a bright white light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 20 points of the compass ; so fixed as to throw the light 10 points on each side of the ship, viz. from right ahead to two points abaft the beam on either side ; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

(*b*) On the starboard side, a green light so constructed as to show an uniform and unbroken light over an arc of the

horizon of 10 points of the compass; so fixed as to throw the light from right ahead to 2 points abaft the beam on the starboard side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*c*) On the port side, a red light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass; so fixed as to throw the light from right ahead to 2 points abaft the beam on the port side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*d*) The said green and red side-lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

Art. 4. A steam-ship, when towing another ship, shall in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position, as the white light which other steam-ships are required to carry.

Art. 5. (*a.*) A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of, but not lower than, her foremast-head, three black balls or shapes, each two feet in diameter.

(*b.*) A ship, whether a steam-ship or a sailing ship, employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over another, not less than six feet apart: the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than, her foremast-head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

(*c.*) The ships referred to in this Article, when not making any way through the water, shall not carry the side-lights, but when making way, shall carry them.

(*d.*) The lights and shapes required to be shown by this Article are to be taken by other ships as signals that the ship showing them is not under command, and cannot therefore get out of the way. The signals to be made by ships in distress and requiring assistance are contained in Article 27.

Art. 6. A sailing ship under way, or being towed, shall carry the same lights as are provided by Article 3 for a steam-ship under way, with the exception of the white light, which she shall never carry.

Art. 7. Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

Art. 8. A ship, whether a steam-ship or a sailing ship, when at anchor, shall carry, where it can best be seen, but at height not exceeding 20 feet above the hull, a white light, in a globular lantern of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light visible all round the horizon at a distance of at least one mile.

Art. 9. A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but

shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

Art. 10. Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

The following portion of this article applies only to fishing vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre:—

(*a*) All fishing vessels and fishing boats of 20 tons net registered tonnage, or upwards, when under way and when not required by the following regulations in this article to carry and show the lights therein named, shall carry and show the same lights as other vessels under way.

(*b*) All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than five feet, and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night with a clear atmosphere, for a distance of not less than three miles.

(*c*) A vessel employed in line fishing with her lines out shall carry the same lights as a vessel when engaged in fishing with drift nets.

(*d*) If a vessel when fishing becomes stationary in consequence of her gear getting fast to a rock or other obstruction, she shall show the light and make the fog signal for a vessel at anchor.

(*e*) Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this Article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

(*f*) Every fishing vessel and every open boat when at anchor between sunset and sunrise shall exhibit a white light visible all round the horizon at a distance of at least one mile.

(*g*) In fog, mist, or falling snow, a drift net vessel attached to her nets and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

Art. 11. A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

Sound Signals for Fog, &c.

Art. 12. A steam-ship shall be provided with a steam whistle or toher efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog horn to be sounded by a bellows or other mechanical means, and also with an efficient bell.* A sailing ship shall be provided with a similar fog-horn and bell.

In fog, mist, or falling snow, whether by day or night, the signals described in this Article shall be used as follows; that is to say—

(*a*) A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

(*b*) A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the

* In all cases where the regulations require a bell to be used, a drum will be substituted on board Turkish vessels.

starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

(*c*) A steam-ship and a sailing ship, when not under way shall, at intervals of not more than two minutes, ring the bell.

Speed of Ships to be moderate in Fog, &c.

Art. 13. Every ship, whether a sailing ship or steam-ship, shall in a fog, mist, or falling snow, go at a moderate speed.

Steering and Sailing Rules.

Art. 14. When two sailing ships are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, viz.—

(*a*) A ship which is running free shall keep out of the way of a ship which is close-hauled.

(*b*) A ship which is close-hauled on the port tack shall keep out of the way of a ship which is close-hauled on the starboard tack.

(*c*) When both are running free with the wind on different sides, the ship which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free with the wind on the same side, the ship which is to windward shall keep out of the way of the ship which is to leeward.

(*e*) A ship which has the wind aft shall keep out of the way of the other ship.

Art. 15. If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This Article only applies to cases where ships are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two ships which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are, when each of the two ships is end on, or nearly end on, to the other; in other words, in cases in which, by day, each ship sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each ship is in such a position as to see both the side-lights of the other.

It does not apply, by day, to cases in which a ship sees another ahead crossing her own course; or by night, to cases where the red light of one ship is opposed to the red light of the other, or where the green light of one ship is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

Art. 16. If two ships under steam are crossing, so as to involve risk of collision, the ship which has the other on her own starboard side shall keep out of the way of the other.

Art. 17. If two ships, one of which is a sailing ship, and the other a steam-ship, are proceeding in such directions as to involve risk of collision, the steam-ship shall keep out of the way of the sailing ship.

Art. 18. Every steam-ship, when approaching another ship, so as to involve risk of collision, shall slacken her speed or stop and reverse, if necessary.

Art. 19. In taking any course authorised or required by these Regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.—

One short blast to mean "I am directing my course to starboard:"

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

Art. 20. Notwithstanding anything contained in any preceding Article, every ship, whether a sailing ship or a steam-ship, overtaking any other shall keep out of the way of the overtaken ship.

Art. 21. In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such ship.

Art. 22. Where by the above rules one of two ships is to keep out of the way, the other shall keep her course.

Art. 23. In obeying and construing these rules due regard shall be had to all dangers of navigation; and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

No Ship, under any circumstances, to neglect proper Precautions.

Art. 24. Nothing in these rules shall exonerate any ship, or the owner, or master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

Reservation of Rules for Harbours and Inland Navigation.

Art. 25. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbour, river, or inland navigation.

Special Lights for Squadrons and Convoys.

Art. 26. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war or for ships sailing under convoy.

Art. 27. When a ship is in distress, and requires assistance from other ships or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, that is to say—

In the day-time—

1. A gun fired at intervals of about a minute.
2. The International Code signal of distress indicated by N C.
3. The distant signal, consisting of a square flag, having either above or below it a ball or anything resembling a ball.

At night—

1. A gun fired at intervals of about a minute.
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.).
3. Rockets or shells, throwing stars of any colour or description, fired one at a time, at short intervals.

ORDERS IN COUNCIL OF 30TH DECEMBER 1884 AND 24TH JUNE 1885.

ALTERNATIVE LIGHTS FOR TRAWLERS WHEN ENGAGED IN TRAWLING, HAVING THEIR TRAWLS IN THE WATER AND NOT BEING STATIONARY.

1884.—PART I.—STEAM-VESSELS OF 20 TONS GROSS REGISTER TONNAGE OR UPWARDS.

(1.) On or in front of the foremast head and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side, such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet nor more than 12 feet.

1884.—PART II.—SAILING VESSELS OF 20 TONS NET REGISTER TONNAGE OR UPWARDS.

(1.) On or in front of the foremast head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft

the beam on the port side: and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet.

1885.—SAILING TRAWLERS OF ANY TONNAGE.

As regards sailing vessels engaged in trawling, such vessels having their trawls in the water and not being stationary in consequence of their gear getting fast to a rock or other obstruction, if they do not carry and show the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in Part 2 of the Schedule to the said recited Order in Council of the 30th of December, 1884, shall carry and show in lieu of the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in paragraph 2 of the Schedule to the said recited Order, other lights as follows, that is to say:

A white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, and visible on a dark night with a clear atmosphere for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by another ship or vessel in sufficient time to prevent collision.

AIDS TO MEMORY in four verses, by THOMAS GRAY.

1. *Two Steam-ships meeting.*

When both side-lights you see ahead—
Port your helm and show your RED.

2. *Two Steam-ships passing.*

GREEN TO GREEN—or, RED TO RED—
Perfect safety—Go ahead!

3. *Two Steam-ships crossing.*

Note.—This is the position of greatest danger: there is nothing for it but good look-out, caution, and judgment.

If to your starboard RED appear,
It is your duty to keep clear;
To act as judgment says is proper:—
To port—or Starboard—Back,—or, Stop her!

But when upon your Port is seen
A Steamer's Starboard Light of GREEN,
There's not so much for you to do.
For GREEN to Port keeps clear of you.

4. *All Ships must keep a good look-out, and Steam-ships must stop and go astern, if necessary.*

Both in safety and in doubt
Always keep a good look-out;
In danger, with no room to turn,
Ease her, stop her, go astern.

14th October 1867.

APPENDIX E.

DISTRESS AND PILOT SIGNALS.

The following sections, together with the schedules referred to therein, of the "Merchant Shipping Acts Amendment Act, 1873," relate to Signals of Distress and signals for Pilots. (*See also "Regulations for preventing Collisions at sea." Article* 27.)

M. S. Act, 1873.

18. The signals specified in the first schedule to this Act shall be deemed to be signals of distress. Signals of distress.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals, except in the case of a vessel being in distress, shall be liable to pay compensation for any labour undertaken, risk incurred, or loss sustained in consequence of such signal having been supposed to be a signal of distress, and such compensation may, without prejudice to any other remedy, be recovered in the same manner in which salvage is recoverable.

Signals for pilots.

19. If a vessel requires the services of a pilot, the signals to be used and displayed shall be those specified in the second schedule to this Act.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals for any other purpose than that of summoning a pilot, or uses or causes or permits any person under his authority to use any other signal for a pilot, shall incur a penalty not exceeding twenty pounds.

Power to alter rules as to signals.

20. Her Majesty may from time to time by Order in Council repeal or alter the rules as to signals contained in the schedules to this Act, or make new rules in addition thereto, or in substitution therefor, and any alterations in or additions to such rules made in manner aforesaid shall be of the same force as the rules in the said schedules.

SCHEDULES.

SCHEDULE I.

Signals of Distress.

In the day-time.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress in the day-time:—

1. A gun fired at intervals of about a minute;
2. The International Code signal of distress indicated by N C;
3. The distant signal, consisting of a square flag having either above or below it a ball, or anything resembling a ball.

At night.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress at night:

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, of any colour or description, fired one at a time, at short intervals.

SCHEDULE II.

Signals to be made by Ships wanting a Pilot.

In the day-time.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot in the day-time, viz.—

1. To be hoisted at the fore, the Jack or other national colour usually worn by merchant ships, having round it a white border, one-fifth of the breadth of the flag; or
2. The International Code pilotage signal indicated by P T.

At night.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot at night, viz.—

1. The pyrotechnic light, commonly known as a blue light, every fifteen minutes; or
2. A bright white light, flashed or shown at short or frequent intervals, just above the bulwarks, for about a minute at a time.

APPENDIX F.

Examination in Chart.

For all Grades where the Chart is used.

[The candidate will be required to work out the following questions on either a "true" or "magnetic" chart* whichever may be handed to him by the Examiner; and also determine whether the chart is a "true" or "magnetic" one, and whether it is for the northern or southern, and eastern or western hemisphere.]

* The terms "true" and "magnetic" are used for the sake of brevity and convenience, for indicating charts that have compasses delineated upon them showing the "true" or "magnetic" point of the compass respectively.

1. Using deviation [card] [curve*] No. , find the course to steer by compass from to ; also the distance.

Answer.—Compass course °

Distance °

Variation °

Deviation °

2. With the ship's head on the above-named compass course a [point] [light-house] bore by compass and bore by the same compass, find the ship's position.

Answer.—Latitude °

Longitude °

3. With the ship's head as above, a [point] [light-house] bore by compass , and after continuing on the same course miles it bore , find the position of ship and her distance from at the time of taking the second bearing.

Answer.—Latitude °

Longitude °

Distance °

All the foregoing questions must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature °

Date °

Chart used °

Additional for Masters.

4. Find the course to steer by compass from to (*see* Question 1) to counteract the effect of a current which set at the rate of miles per hour, the ship making by log miles per hour; also the distance the ship would then make good in hours towards

Answer.—Compass course °

Distance °

5. On being off took a cast of the lead; required the correction to be applied to the depth obtained by the lead line before comparing it with the depth marked on the chart.

6. What do you understand the small numbers to indicate that you see placed about the chart, and at what time of tide?

7. What do the Roman numerals indicate that are occasionally seen near the coasts and in harbours?

8. How would you find, approximately, the time of high water at any place, the Admiralty tables not being at hand, nor any other special tables available?

All the foregoing questions, and those on Form Exn. 9C., must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature

Date

* A Candidate for a Master's Certificate is expected to use either a card of deviations or a curve of deviations on a Napier's diagram, whichever the Examiner may think proper to put before him.

APPENDIX G.

Deviation of the Compass.

N. B.—*The Examiner will not mark less than* 12 *of the following questions, which must be correctly answered by the candidate, and the Examiner's attention is specially called to the importance of Questions* 7, 8, 9, 10, *and* 19, *which should be marked in all cases.*

1. What do you mean by Deviation of the Compass?
2. How do you determine the deviation (*a*) when in port, and (*b*) when at sea?
3. Having determined the deviation with the ship's head on the various points of the Compass, how do you know when it is easterly and when westerly?
4. Why is it necessary, in order to ascertain the deviations, to bring the ship's head in more than one direction?
5. For accuracy, what is the least number of points to which the ship's head should be brought?
6. How would you find the deviation when sailing along a well-known coast?
7. In the following table give the correct magnetic bearing of the distant object, and thence the deviation:—

Ship's head by Standard Compass.	Bearing of distant object by Standard Compass.	Deviation required.	Ship's head by Standard Compass.	Bearing of distant object by Standard Compass.	Deviation required.
North			South		
N.-E.			S.-W.		
East			West		
S.-E.			N.-W.		

8. With the deviation as above, give the courses you would steer by the Standard Compass to make the following courses, correct magnetic [ ].
9. Supposing you have steered the following courses by the Standard Compass, find the correct magnetic courses made from the above deviation table [ ].
10. You have taken the following bearings of two distant objects by your Standard Compass as above; with the ship's head at , find the bearings, correct magnetic [ ].
11. Name some suitable objects by which you could readily obtain the deviation of the Compass when sailing along the coasts of the English Channel.
12. Do you expect the deviation to change; if so, state under what circumstances?
13. How often is it advisable to test the accuracy of your table of deviations?
14. State briefly what you have chiefly to guard against in selecting a position for the Compass.
15. The Compasses of iron ships are more or less affected by what is termed the heeling error; on what courses does this error vanish, and on what courses is it the greatest?
16. State to which side of the ship, in the majority of cases, is the North point of the Compass drawn in the Northern Hemisphere; and what effect has it on the assumed position of the ship when she is steering on Northerly, and also on Southerly courses?
17. The effect being as you state, on what courses would you keep away, and on what courses would you keep closer to the wind, in order to make good a given Compass course?
18. Does the same rule hold good in both hemispheres with regard to the heeling error?
19. Your Steering Compass having a large error, how would you proceed to correct that Compass by compensating magnets and soft iron, in order to reduce the error within manageable limits?

APPENDIX H.

Syllabus of Examination in the Laws of the Deviation of the Compasses of an Iron Ship, and in the Means of compensating or correcting it.

Candidates for the voluntary examination in Compass Deviation, and also for Extra Masters' Certificates, will be examined in the whole of this syllabus, and will be required to answer all

the questions correctly, and to the entire satisfaction of the Examiner.

1. Describe an artificial magnet, and how a steel bar or needle is usually magnetized.

2. [*For the sake of simplicity it is desirable to adopt the nomenclature of the Astronomer Royal, and call that pole of the compass needle that points to the magnetic north the red, and the other the blue pole.*] What effect has the pole of one magnet of either name on the pole of the same name of another magnet, and what would be the consequence of the pole of one magnet of either name being brought near enough to affect the pole of contrary name, if in these cases both magnets were freely suspended?

3. By applying this law to all magnets, natural as well as artificial, show what would be the result on a magnetic bar or needle, freely suspended, but by weight or by the nature of its mounting constrained to preserve a horizontal position; and what result, if so mounted, but free to move in every direction, the earth being regarded as a natural magnet?

4. Which is the red magnetic pole of the earth, and which the blue?

5. What is the cause of the variation of the compass?

6. What is meant by the deviation of the compass?

7. Describe the sub-permanent magnetism of an iron ship, and state when and how it is acquired, and which is the sub-permanent red, and which is the blue pole, and why it is called sub-permanent magnetism.

8. What is meant by "the composition of forces" and "the parallelogram of forces," and show how the knowledge of these is valuable in ascertaining and compensating the sub-permanent magnetism of an iron ship?

9. Describe the co-efficients B and C, plus (+), and minus (—), and why they are said to produce semi-circular deviations.

10. On what points by compass bearing of the ship's head does + B give westerly deviation, and on what does it give easterly; and also on what point does — B give westerly, and on what points easterly?

11. On what points does + C give westerly, and on what points easterly; also on what points does — C give westerly, and on what points easterly deviation?

12. How would you compensate the co-efficient C?

13. How would you compensate the co-efficient B?

14. If the value either of co-efficient B or C be given, also the magnetic direction of the ship's head while she was being built, how by the traverse tables would you determine the approximate value of the other co-efficient C or B; and if the value of both these co-efficients be given, how would you determine approximately the direction, by compass, of the ship's head whilst being built?

15. What is meant by transient induced magnetism?

16. Under what circumstances does induced magnetism give semi-circular deviation?

17. How would you compensate — B resulting from induced magnetism, and why for this purpose would you adopt a different mode of compensation to that employed in correcting — B produced by sub-permanent magnetism?

18. Describe quadrantal deviation, and state what co-efficients represent it; also on what points of the ship's head, by compass, each of these co-efficients gives the greatest amount of deviation.

19. On what points of the compass will each of these co-efficients, D and E + and —, give easterly, and on what points westerly deviation?

20. Generally + D gives the greatest amount of *quadrantal* deviation: how should it be compensated?

21. If D be compensated in the manner you have described, will it remain so in every latitude? If so, state the reason why.

22. What conditions of the iron of a ship will produce + D and what — D?

23. Describe the nature of the deviation resulting from + A and —A, and describe the error in the construction of the compass that frequently produces them.

24. Under what circumstances does the character of A and E so change as to render it desirable that these co-efficients should be disregarded or modified?

25. The value of A, B, C, D, and E being given, or B, C, and D only, find the deviation on any required point of the compass, or construct a table of deviation, if required.

26. Describe how you would determine the deviation by means of a distant object, by reciprocal bearings, or by the figures on the dock walls.

27. If it be required to determine the deviation of two or more compasses, it is most convenient to bring the ship's head, *correct* magnetic, on as many points as may be necessary. To determine the co-efficients B, C, and D, the bearing of the ship's head by each compass is required. How would you for this purpose employ a Graphic Method?

28 State your rule for determining whether deviation is easterly or westerly.

29. Describe the use of the "dumb card," or an azimuth card without a needle, in compensating a compass.

30. If you determine the deviation by an azimuth or an amplitude of a heavenly body, it is then combined with variation,* which together is sometimes called the *correction* for the compass. State when the deviation is the difference between the variation and the *correction*, and when the sum; and when it is of the same name as that of the *correction*, and when of the contrary name.

31. In observing azimuths of heavenly bodies, the best method is by "time azimuths," since these can be observed without an altitude when the ship is in port, or the horizon cannot be defined from any cause. Given the sun's declination, the hour of the day, and the latitude to find the true bearing of the sun.†

32. By night, if it be desirable to observe the *correction* of the compass. Given the day of the year, and time at ship, also the latitude of the place to determine what† star will be in good position for this purpose.

33. If your correcting magnets are so mounted that their positions can be altered, describe the process by which, on open sea, you can place the ship's head correct magnetic N. (or S.), and correct magnetic E. (or W.), and can make the correction perfect.

34. Given the name of a star, the time, the place of ship, the variation of the compass, and the bearing of the star by compass. Determine the deviation, and name it east or west.

35. If an ordinary standard compass placed higher than the iron top sides be compensated whilst the ship is upright, what coefficient will be effected by heeling?

36. When generally will this co-efficient be plus, and when minus?

37. State the exceptions to this general rule.

38. Does the heeling error arise from the altered position of the sub-permanent poles of the ship, or from a change in the induced magnetism?

39. To what extent is the heeling error altered by a change in the magnetic latitude of the ship?

40. If a ship is beating to windward; when she tacks, under what circumstances will the heeling error retain the same name, and under what circumstances will it take the contrary name?

41. If a ship is placed on the opposite tack by the change of wind, the ship's course being the same by compass, will the heeling error change its name?

42. Under what circumstances will the heeling error, if disregarded, take the ship to windward, or when to leeward?

43. Can the heeling error be compensated? If so, state the means to be employed.

44. Can the compensation of the heeling error be depended on in every latitude? If not, state the reason.

45. Given the heel, the direction of the ship's head by compass, and the heeling error observed, to find the approximate heeling error, with a greater or less given heel, and with the ship's head on some other named point of the compass, the ship's magnetic latitude being in both cases the same.

46. Describe any instrument to show the ship's heel (generally called a clinometer), and state how and where it should be fixed.

47. Should the clinometer be observed when the ship is swung to determine the deviation when the ship is upright? If so, state the reason why.

APPENDIX I.

Particulars of Examination in Sumner's Method by Projection.

Candidates are required to compute their longitude by chronometer worked with two assumed latitudes.

* The magnetic variation is best determined by a chart of the curves of equal magnetic variation.

† The process of finding time azimuths by the ordinary formulæ of spherical trigonometry is tedious, and since on board an iron ship these observations should be often repeated, the candidate will be allowed to use any table or graphic or linear method that will solve the problem within a half of a degree, the altitude of the heavenly body not being given.

They are to mark off on the chart the two positions ascertained by the first altitude, and are then to connect them with a straight line, termed the *line of position*, or the line of equal altitude, which will show the bearing of any land it may intersect.

They will then be required to correct the first *line of position* for the ship's change of station, in the interval between the two observations, to project the *line of position* corresponding to the second observation on the chart, showing by its intersection with the first *line of position*, as corrected for change of station, the position of the ship at the time of the second observation.

The longitudes corresponding to the two latitudes by the second observation are no longer furnished by the Examiners. The candidates are consequently required to work out the whole of the problem for themselves (in place of the explanation recently required), and must be prepared to find the sun's true bearing by projection at the time of taking either the first or second observation; and when necessary to produce the *lines of positions* on the chart in order to make them cut one another should the position of the ship happen to be outside the parallels of the two assumed latitudes given in the question. Outline charts, extending from 46° to 49° and from 49° to 52° of latitude, respectively, are furnished by the Board of Trade to the different examiners for this purpose.

APPENDIX K.

The Candidate must answer in writing, on paper supplied to him by the Examiner, the following questions, numbering the answer to correspond with the questions.

Question—

Questions relating to cyclones or revolving storms common in tropical seas.

1. The direction of the wind in a cyclone being*_____ state the probable bearing of its centre from the ship in the*_____ Hemisphere.
2. And suppose that the wind during the passage of the same cyclone were found to change towards the*_____, what would be the ship's position with reference to the line of progression of the centre of the cyclone, and what action would you take?
3. Under what conditions would the change in the direction of the wind in the cyclone be the reverse of the above?
4. What are the usual indications of a ship being on the line of progression of the centre of a cyclone?
5. What are the usual indications that a ship is (*a*) approaching the centre of a cyclone; (*b*) receding from it?
6. Describe the track usually taken by cyclones in the †_____, and state the seasons of the year in which they most frequently occur in that region.

APPENDIX L.

Instructions to Examiners.

Examination in Colours.

Herewith are—

(*a*) A lanthorn having in it a lamp in which kerosine is to be burnt.

(*b*) A slide having ground glass in it.

(*c*) Nine slides, each having a coloured glass in it. The colours are as follows:—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1).
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

* These spaces to be filled in by the Examiners, and frequently varied.

† The Examiners to fill in whether North Atlantic, Bay of Bengal, China Seas, Indian Ocean, &c., &c.

(*d*) Cards, five of each as follow :—

1. White.
2. Black.
3. Red.
4. Pink.*
5. Green.
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (Cards.)

In conducting the examination by daylight, the examiner should do it in three ways—

1. The cards should be mixed up. The examiner should then hold up each card separately, and ask the candidate to name the colour, and if the candidate does so without hesitation, he is to be regarded as having passed the daylight test.
2. If the candidate hesitates in any of his answers, so as to raise a doubt in the mind of the examiner as to his ablity to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that, they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap.
4. The result of the examination should be noted and recorded in each case.

Examination by artificial Light.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn, and at least 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked if it appears to him to have any colour; and if so, what colour?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star * is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having "failed" if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c.; or to name card No. 7 as red, green, or yellow; or glass No. 2 as green, blue, or yellow; or glass No. 5 as red, pink, salmon, &c.; or glass No. 7 as bright red or bright green; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B.

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black, by daylight; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown), he may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.

APPENDIX M.

Instructions to Examiners.

Compass Adjustment.

It is of the utmost importance that masters of ships should thoroughly understand the tentative method of Compass Adjust-

ment as generally practised in merchant ships, and Examiners are therefore directed to fully satisfy themselves that all Candidates for Masters' Certificates have this particular knowledge. It should be tested in connexion with the Form of Examination, "Exn. 7," or it may be tested by Captain Beall's "Deviascope" at those ports which have been supplied with this instrument. Where the "Deviascope" is used it will not be necessary for the Candidates to give the written answers and sketches illustrative of the Question 19 of Form Examination 7.

A concise statement of the present method of tentative Compass Adjustment is forwarded for the use of Examiners. The Government wish them, however, distinctly to understand that the Government are not in any way advocating the correction of that part of co-efficient B which arises from vertical induction in soft iron by a permanent magnet instead of by a soft iron bar. The Government have no authority to interfere with the methods in use amongst Compass adjusters for the adjustment of Compasses in iron ships, but instruct the Examiners to satisfy themselves that masters are acquainted with the ordinary method as at present practised.

The examination by the "Deviascope" is at present only experimental, and no Candidate should be reported as having "failed" who does not pass the examination in it, provided he has answered satisfactorily the Question 19, "Exn. 7."

The "Deviascope" is sent only to three ports at present, and its extended use will depend upon experience at those ports.

The Tentative Method of Compass Adjustment as generally practised by Compass Adjusters in Ships of the Mercantile Marine.

Before describing the practice it will be as well to briefly state the co-efficients used to express the different magnetic forces:—

Co-efficient A represents a constant quantity.
" B " semi-circular deviation due to fore and aft magnetic forces.
" C " semi-circular deviation due to transverse magnetic forces.
" D " quadrantal deviation due to horizontal induction in soft iron.
" E " quadrantal deviation due to horizontal induction in soft iron unsymmetrically distributed.

Signs and Effects of Co-efficients A, B, C, D, and E.

Co-efficient A represents a constant deviation of the same nature and amount, on all points of the compass; + A signifying easterly, and — A, westerly deviation.

Co-efficient + B represents an attraction towards the ship's head, and causes easterly deviations with ship's head in the eastern semi-circle of the Compass, and westerly deviations in the western semi-circle, attaining a maximum value on the east and west points, decreasing to zero on north and south points, by Compass.

Co-efficient — B represents an attraction towards the ship's stern, and causes easterly deviations with ship's head in the western semi-circle, and westerly deviations with the ship's head in the eastern semi-circle, with a maximum value on the east and west points, decreasing to zero on the north and south points, by Compass.

Co-efficient + C represents an attraction towards the starboard side of the ship, and causes easterly deviations with ship's head in the northern semi-circle, and westerly deviations in the southern semi-circle, attaining a maximum value on the north and south points, decreasing to zero on the east and west points, by Compass.

Co-efficient — C represents an attraction towards the port side of the ship, and causes westerly deviations with ship's head in the northern semi-circle, and easterly in the southern semi-circle, attaining a maximum value on the north and south points, decreasing to zero on the east and west points, by Compass.

Co-efficient + D gives easterly deviations with ship's head between N. and E. and S. and W., and westerly deviations between S. and E. and N. and W.

Co-efficient — D gives results exactly the reverse to + D.

Note.—Both + D and — D have a maximum value on the four quadrantal points, and become zero on the cardinal points by Compass.

Co-efficient + E gives easterly deviations with ship's head between N.E. and N.W. and S.E. and S. W. and westerly deviations between N.E. and S.E. and N.W. and S.W.

Co-efficient — E gives results exactly the reverse to + E.

Note.—Both + E and — E have a maximum value on the cardinal points, and become zero on the four quadrantal points, but are usually very small in amount in Compasses placed in the middle line of the ship.

Heeling Error.—The heeling error arises partly from vertical induction in transverse iron, and iron vertical to the ship's deck, and partly from the vertical component of the sub-permanent magnetism of the ship. In the Northern Hemisphere in the majority of cases the N. point of the Compass needle is drawn to windard or the high side of the ship, with, as a rule, a maximum heeling error on N. and S. points, and zero on E. and W. points by Compass. If the Compass is not properly placed in the ship, there may be a sensible heeling deviation on E. and W. courses.

Tentative Corrections.

To correct co-efficient C.—With ship's head north or south, magnetic, place a bar magnet (or more than one if necessary) horizontally and exactly athwart ship, either on the deck or on any convenient platform, with its centre on the fore and aft line passing through the centre of the Compass card, placing its red or marked end to starboard if the N. point of the needle deviates to the starboard side, or to port if it deviates to the port side of the ship, moving the magnet to or from the Compass until it points correctly.

Note.—The deviation represented by co-efficient C varies inversely as the earth's horizontal force, providing the iron is symmetrically arranged on each side of the Compass.

To correct co-efficient B.—With ship's head east or west, magnetic, place a bar magnet (or more than one if necessary) horizontally and exactly parallel to the fore and aft midship line of the ship, either on the deck or on any convenient platform, with its centre on the athwart ship line passing through the centre of the Compass, the red or marked end of the magnet being directed aft if the end point of the Compass needle deviates towards the stern, or forward if it deviates towards the bow, moving the magnet to or from the Compass until it points correctly.

Note.—The co-efficient B consists of two parts: one is due to the permanent magnetism of the ship, which varies inversely as the earth's horizontal force; the other to vertical induction in soft iron, which varies as the tangent of the dip. As ships in the merchant service are rarely built with a view of providing a satisfactory position for the standard Compasses, it is very difficult in many ships to find a position for it where it will not be affected by vertical iron. It follows, therefore, that if this deviation be compensated, as is customary, by a fore and aft permanent magnet instead of by a vertical soft iron bar, the poles of the magnet may in some cases require to be reversed in high southern latitudes.

To correct co-efficient + D.—With ship's head on one of the quadrantal points, magnetic, the + D is generally corrected by boxes of small chain, cylinders of soft iron, or soft iron globes placed athwart ships on the same level, and at equal distances, on the port and starboard sides of the Compass, with the centre of their mass on a level with the Compass needle, move them to or from the Compass till the needle points correctly.

To correct co-efficient—D.—Co-efficient—D, which is of very rare occurrence, is corrected by placing the above correctors on the fore and aft sides of the compass.

Note.—When once the co-efficient D is properly corrected by soft iron it is correct for all magnetic latitudes, provided the distribution of the iron in the ship is not materially changed, and provided the magnetism of the soft iron has not been affected by the Compass needles. With short needles having small magnetic power, such for instance as Sir Wm. Thomson's, there will probably be no change; but when the needles are long and powerful, one-half the original D may be expected to return when approaching the magnetic equator. *See* Admiralty Manual, 1882, page 96, as follows:—"When "a compass with long and powerful needless is employed, "soft iron correctors placed very near it become mag- "netized by induction according to the power of the

" needles, and the resulting correction will not remain " strictly perfect in all latitudes."

To correct Heeling Error.—The heeling error is corrected for any given magnetic latitude by placing a vertical magnet exactly under the centre of the Compass card, with its N. or red pole uppermost if the heeling error is to windward or to the high side of ship, or its S. or blue end uppermost if to leeward or to the low side of ship, moving the magnet to or from the Compass until the heeling error is corrected.

Note.—The heeling error, due to the permanent par of the magnetism, varies inversely as the earth's horizontal force, and consequently is greatest in high latitudes, diminishes as the ship approaches the magnetic equator, and increases again, still retaining the same name, as the ship recedes from the magnetic equator in the Southern Hemisphere. The heeling error, due to transverse and vertical soft iron, decreases as the ship approaches the magnetic equator, where it is zero, and is of a contrary name in the Southern Hemisphere. It is probable that the poles of the vertical magnet may require to be reversed in high southern latitudes.

A divided scale should be marked or fitted outside the tube or some other convenient place, so as to show the proper position for the correcting magnet as found in any given magnetic latitude, and the same recorded as a guide for approximately placing the magnet in position on any subsequent voyage in the same locality, and especially on the return of the ship to the United Kingdom.

Candidates should understand that the object of tentative adjustment is to bring the deviations within manageable limits, and also to equalise the directive force of the needle so far as is practicable on all courses ; but no system of adjustment whatever is sufficiently reliable in character to absolve the navigator from the necessity of using every precaution, and especially of ascertaining the deviation on every available opportunity by observations of the sun by day and the other heavenly bodies by night.

APPENDIX N.

(From Memorandum on Examination of Engineers.)

EXAMINATION OF A MASTER OR MATE IN STEAM

The regulations under which these examinations are conducted are printed at pages 41 to 43 of the regulations for examinations of masters and mates. (Exn. 1.)

A candidate for this examination is required to have a thorough grasp of the construction of the steam engine and boiler, to enable him, in the first place, to understand the nature and importance of any defect which may be reported to him by the engineer, and so that he may work in harmony with the engineer in affording time and facilities for disconnexions, inspections, adjustments, and repairs.

To have a looking-on knowledge of what the principal repairs are about engines and boilers and pipes, and how these repairs are accomplished.

To be able to form an independent opinion as to a breakdown and the consequent propriety or impropriety of proceeding under steam with temporarily repaired or defective machinery.

To understand how to estimate approximately the reduction of fuel required for reduced speed, and consequently to sanction such reduction of speed as may seem to him to be warranted by the report of the engineer, and to satisfy himself before leaving port that there is sufficient coal for the voyage.

To have an intelligent grasp of the general run of pipes and connexions in the engine room, the marking of cocks, the opening and closing of cocks and valves, how mistakes of importance may be made in the confusion of an accident, and how best to guard against such mistakes.

To be capable of being left in charge of the feeding of a set of boilers, to understand the working of the water-gauge, and to be able to guard against being misled by false indications of the gauge glass.

To understand about blowing down and surfacing, the reasons for doing so, and the danger which may result from the neglect of these under certain circumstances. A master or mate presenting himself for examination in steam must be understood to have made up for his want of practical experience by reading up

about the steam engine. He ought, therefore, to show that he has given his mind to intelligently understanding the *rationale* of the action of the steam engine. Under this head, he should, therefore, be able to state approximately the quantity of heat required in the formation of steam, the remarkable relation of "latent" heat to "sensible" heat, using these popular names, how much steam can be raised by the combustion of one pound of coal, what horse-power measure is, what indicated horse-power is, the action of the slide-valve, the course of the steam through the engine, the advantage of working expansively, and how the expansive action is shown by the indicator diagram.

The candidate has to answer in writing 16 out of 20 questions selected from the book of Elementary Questions * Selections for this examination are given on the alphabetic sheet for "Steam." Generally, these answers are given by candidates as learned by rote from a book; the candidate should therefore be asked such *vivâ voce* questions as will necessitate his giving his answers in different words, so as to discover whether he has the root of the matter in him.

The principal part of the *vivâ voce* is the examination on board a steamer, preferably one with which he is unacquainted. He is told to look about and try to find out the run of the machinery without the assistance of any one; the Examiner to be in the engine-room to see that this independent examination is properly carried out. When the candidate reports that he thinks he knows the whole arrangement of the machinery, the Examiner will then question him on the uses of the parts, get him to point out the different cylinders, pumps, valves, condenser, &c. He must show that he understands the run of the pipes in the bilges, not necessarily that he has gone over every one of them, but he ought to be directed to trace, at least, one important range of pipes, and to thoroughly satisfy the Examiner that he could be safely trusted to manipulate the valves or cocks in connexion therewith. It will not often be practicable for the candidate to be asked to actually work engines under steam, but he must satisfy the Examiner that he knows how to do so, and that he is aware what precautions have to be taken in regard to water in the cylinder, &c. It is most important that a candidate should show that, in the event of an accident depriving him of the assistance of engineers, he knows what to do to safely take his vessel to an anchorage, or to stop the engines and proceed under sail alone.

The examination of a mate in steam is the same as that of a master. The knowledge is not with reference to the mate's position. A mate may be examined, but such examination implies that the mate will one day be a master, when the possession of the knowledge will be an advantage to him in the discharge of his duties as master.

APPENDIX O.

The following is a reprint of

INSTRUCTIONS

TO

EXAMINERS OF MASTERS AND MATES.

1. The Examiners already understand that they are to be very careful (in examining all applicants for Certificates of Competency) to satisfy themselves that the applicants understand the Rule of the Road at Sea, and should decline to pass every applicant who does not understand it.

2. As a serious misapprehension has, however, arisen in a recent case in which Sound Signals were being made by a steamer under way in thick weather, contrary to the express wording of Articles 12*a* and 19 of the Regulations, it is more than ever incumbent on Examiners not to pass any applicant unless the Examiner is satisfied that the applicant understands that the Signals named in Article 19 are purely optional, and are only allowed to be made in cases in which the weather is so clear that the ship making them has the other vessel in sight.

3. Any Master using these *optional* Sound Signals, even when the other vessel is in sight, does so in every case on his own

* Printed at end of Engineers' Regulations, Exn. 1*a*.

responsibility ; but if he uses them when the other vessel is *not* in sight, he commits a very serious act of disobedience to the Regulations, and must abide the consequences of his illegal act.

4. Applicants must be made to understand that the compulsory Sound Signal which *must* be made by a steamer under way in a fog is a prolonged blast under Article 12*a*, and no other Sound Signal.

5. In examining an applicant on the application of Articles 12 and 13, the Examiner should, by answers to questions, ascertain that the applicant understands that it is his duty to go at a moderate speed in fog, while, as regards Article 24, the Examiner should impress on the applicant that an "ordinary precaution" to be observed in the navigation of a steam-ship in a fog is to get the way off his own vessel immediately he hears the Sound Signal of another steamer, and then he should go ahead very slowly, blowing the "prolonged blast" at intervals, and feeling his way until all danger of collision is passed.

APPENDIX P.

FORMS used in connection with the EXAMINATION and CERTIFICATES of MASTERS AND MATES.

Name of Form.	Initial Letters and Numbers.
Regulations relating to the Examinations of Masters and Mates.	Exn. 1
Masters' and Mates' Form of Application for Examination.	Exn. 2
Form of Application for Examination (Colours) ...	Exn 2*a*.
Examination Paper, to be used in the examination of Second Mates.	Exn. 4
Ditto, to be used by all candidates when appearing for examination for the first time only.	Exn. 4*a*.
Ditto, Second Mates	Exn. 5
Ditto, Only and First Mates	Exn 6
Ditto, ditto ditto	Exn. 6*a*.
Ditto, Masters, Ordinary	Exn. 7
Ditto, for adjustments of the Sextant ..	Exn. 9*a*.
Ditto, Examination in Chart (for Mates)...	Exn. 9*c*.
Ditto, (for Masters)	Exn. 9*d*.
Examiners' Report of Masters' and Mates' Examination	Exn. 14
Examiners' Authority for delivery of Certificate to successful candidate.	Exn. 16
Examiners' Certificate (Colours)	Exn. 16*d*.
Ditto authority for return of Fee to unsuccessful candidate (Colours).	Exn. 17*a*.
Ditto Report on Colours tests	Exn. 17*b*.
Application for renewed Certificate	Exn. 23
Deviation cards	Exn. 24
Napier's Diagram	Exn. 25
Examination paper on Cyclones on revolving storms ...	Exn. 32

Government of Bengal.

BENGAL.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, issued unaer section 8 of the Merchant Shipping (Colonial) Act, 1869.

Colonial Certificate of Competency

AS

MASTER.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of MASTER in the Merchant Service, I do hereby, in pursuance of Act I of 1859, grant you this Certificate of Competency.*

By order of the Government of Bengal,

*this*_____*day of*_____18____.

Under-Secy. to the Govt. of Bengal.

Registered at the Office of the Port Officer of Calcutta.

BENGAL.

No. of Certificate [redacted]

Address of Owner ———————————————

Date and Place of Birth ———————————————

Signature ———————————————

This Certificate is given upon an ORDINARY EXAMINATION passed at ——————— *on the* ———————

day of ——————— 18——.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the ——————— *day of* ——————— 18——.

———————————————

———————————————

Government of Bengal

BENGAL.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, issued under section 8 of the Merchant Shipping (Colonial) Act, 1869.

Colonial Certificate of Competency

AS

FIRST MATE.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of FIRST MATE in the Merchant Service, I do hereby, in pursuance of Act I of 1859, grant you this Certificate of Competency.*

By order of the Government of Bengal.

this _____ *day of* _____ 18__.

Under-Secy. to the Govt. of Bengal,

Registered at the Office of the Port Officer of Calcutta.

BENGAL.

No. of Certificate [redacted]

Address of Owner ———————————————

Date and Place of Birth ———————————————

Signature ———————————————

This Certificate is given upon an ORDINARY EXAMINATION passed at ——————— *on the* ———————

day of ——————— 18——.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. *This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act* 25 *and* 26 *Vic., cap.* 63, *sec.* 23, *to cancel or suspend Certificates.*

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the ——————— *day of* ——————— 18——.

———————————————

———————————————

BENGAL.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act*, 1869.

Colonial Certificate of Competency

AS

ONLY MATE.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified fulfil the duties of ONLY MATE in the Merchant Service, I do hereby, in persuance of Act I of* 1869, *grant you this Certifica of Competency.*

By order of the Government of Bengal.

this _____ *day of* _____ 18—.

Under-Secy. to the Govt. of Bengal.

Registered at the Office of the Port Officer of Calcutta.

BENGAL

No. of Certificate 

*Address of Owner*_____

*Date and Place of Birth*_____

*Signature*_____

*This Certificate is given upon an ORDINARY EXAMINATION passed at*_____*on the*_____ *day of*_____18—.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

*Issued at the Port of Calcutta on the*_____*day of*_____18—.

_____

BENGAL.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act*, 1869.

Colonial Certificate of Competency

AS

SECOND MATE.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of SECOND MATE in the Merchant Service, I do hereby, in persuance of Act I of* 1859, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

this _____ *day of* _____ 18—.

Under-Secy. to the Govt. of Bengal.

Registered at the Office of the Port Officer of Calcutta.

BENGAL.

No. of Certificate [redacted]

*Address of owner*_____

*Date and Place of Birth*_____

*Signature*_____

*This Certificate is given upon an ORDINARY EXAMINATION passed at*_____ *on the*_____ *day of*_____ 18 .

Any MASTER or MATE who fails to deliver up a certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. *This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act* 25 *and* 26 *Vic., cap.* 63, *sec.* 23, *to cancel or suspend Certificates.*

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

*Issued at the Port of Calcutta on the*_____ *day of*_____ 18 .

_____

_____

NOTIFICATION.

No. 26 Marine, dated Calcutta, the 31st January 1890.

UNDER the powers conferred upon him by section 10 of Act I of 1859, and with the sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules for the examination of persons desirous of obtaining local certificates of competency as Masters and Mates in the Mercantile Marine. These rules supersede those contained in the Notification of the General (Marine) Department of this Government, dated the 28th August 1877, and published in the *Calcutta Gazette* of the 29th idem.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed, and arrangements have been made for holding the examinations periodically at the Port of Calcutta. The examinations will be held twice a quarter or at such other times as the Government may appoint.

Examinations continued till all the Candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Notice of application for examination to be given to the Port Officer.

3. Candidates for examination must make their application upon the appropriate Form (Exn. 2), which must be filled up at the Port Office. The Exn. 2, properly filled in, together with the Candidate's testimonials and discharges, must be lodged with the Port Officer of Calcutta, not later than the day before the day of examination, and the Candidate must conform to any regulations in this respect which may be laid down by the Government; as, if this be not done, delay may be occasioned.

Testimonials of character, conduct and ability required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges have to be verified before the Candidate can be examined, it is desirable that they should be handed in together with the Form Exn. 2 as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners and of British seamen serving in foreign vessels, which cannot be verified by the Port Officer, must be confirmed either by the Consul of the country to which the ship in which the Candidate served belonged, or by some other recognized official authority of that country, or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case will be decided on its own merits, and if the sufficiency of the proofs given appears to be at all doubtful, it must be referred to the Government.

Certificates as to Age.

6. Should any doubt exist as to the age of a Candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel. In the case of natives of India, who may not be able to speak English, their Certificates shall be endorsed to the effect that they are only valid for vessels manned and officered entirely by Asiatics.

Verification of Services by the Port Officer.

8. The time for which length of service as Seaman or Officer in the Mercantile Marine is to be reckoned in all cases referred to in the following paragraphs is to commence at the date when the articles of agreement were signed by the applicant, and to end at the date when he was discharged as shown in the articles of agreement. The certificates of discharge will generally be sufficient evidence of this, but great care must be exercised by the Port Officer and Examiners to detect any tampering in any way with the information contained in them, and to report to the Government at once any suspicious cases.

9. Services which cannot be verified by proper Entries in the Articles of the Ships in which the Candidates have served cannot be counted. For instance, a man will state his service to have been as Second or Only Mate, and to support his assertion will produce a Certificate of Discharge or of Employment by the Master to the effect that he served as Mate, when, on reference to the articles, it appears that he has actually been rated as Boatswain: the service in such a case will not be regarded as having been in the capacity of Mate.

Service as an Apprentice.

10. Time for which Indentures of Apprenticeship are in force will be accepted as sea service, provided that the Apprentice has remained by the ship for at least four-fifths of the time covered by the Indentures, and that the Indentures of the applicant are endorsed by the Owner or Master to whom he has been bound to the effect that he has performed his service faithfully for the whole time agreed upon.

Service as 2nd, 3rd or 4th Mate to qualify for Master.

12. Service as Second, Third, or Fourth Mate may be accepted as equivalent to service as First or Only Mate to qualify a Candidate for examination for a Master's Certificate of Competency, provided he can produce satisfactory evidence of his having served at sea 12 months as Second, Third, or Fourth Mate of a Foreign-going Ship while in possession of a First Mate's Certificate of Competency, valid in the United Kingdom. It will be noted that occasional service in charge of a watch in the daytime will not be accepted as Mate's service under the Regulations.

Service on board a Training Ship.

13. Part of the time served on board a training ship will be allowed to count as service at sea, provided that the Candidate can produce amongst his testimonials a Certificate from the Committee that he has conducted himself creditably, and passed a good examination in seamanship so far as practised in the training ship as well as in other matters down to the time of his leaving the ship.

14. No period of service on board a training ship will be allowed to count for more than one year's sea service.

Service in capacities other than as Apprentices or Seaman.

15. Candidates whose services have been in capacities other than Apprentice, Ordinary Seaman, or Able Seaman, *e.g.*, Cook, Steward, Carpenter, &c., will be required to satisfy the Port Officer that they have a good knowledge of Seamanship. This may possibly be proved by the production of satisfactory Certificates from Masters with whom the applicants have served. Failing satisfactory evidence, the applicant may be required to perform additional service, which must be in the capacity of Ordinary Seaman or Able Seaman.

Service on rivers and in smooth water.

16. Service performed on rivers, no matter of what size, or in smooth water or partially smooth water limits, cannot be accepted.

Partial loss of sight.

17. A person who has lost the sight of one eye cannot be permitted to be examined for a Certificate of Competency. If he already holds a Certificate, he cannot be examined for a Certificate of a higher grade.

Service in Light-ships and Engine-room.

18. Service in Light-ships or in an Engine-room will not be accepted as sea service for a Master's or Mate's Certificate of Competency.

Service as Hooghly Master Pilot.

19. Service as a First Class Pilot will be accepted as qualifying for examination for a Master's Certificate for Home Trade Ships, notwithstanding that he may not have served in the capacity of Mate, but only provided that his *Sea Services* are sufficient. For the purpose of this rule, a Hooghly Master Pilot will be held to be a First Class Pilot.

Service as Pilot's Apprentice.

20. Half the amount of service performed as an Apprentice in a Pilot Ship propelled by sails may count as actual Sea Service to qualify for examination for a Certificate of Competency.

Service in Tug Boats.

21. Service performed in Tug Boats employed in Sandheads Service or outside Port limits may be accepted as Sea Service for qualifying for a Mate's Certificate for Home Trade Ships. Service on Hooghly River survey vessels may be accepted on the same conditions. Service in the Hooghly Pilot vessels at the Sandheads is Sea Service.

Desertion and gross misconduct.

22. Candidates who have neglected to join their vessels after having signed Articles, or who have deserted their vessels after having joined, or who have been found guilty

of gross misconduct on board, will be required to produce satisfactory proofs of two years' subsequent service and good conduct at sea, unless the Government, after having investigated the matter, should see fit to reduce the time.

If after passing examination services are found to have been insufficient.

23. If after a Candidate has passed his Examination it is discovered on further investigation, *e g.*, by verification on the part of the Port Officer, that his services are insufficient to entitle him to receive a Certificate of the grade for which he has passed, it will not be granted to him; but if the Government are satisfied that the error in the calculation of his services did not occur through any fault or wilful misrepresentation on his part, he will be allowed to go up for re-examination without payment of a further fee when he has performed the amount of service in which he was deficient.

Certificate of a lower grade may be granted on certain conditions.

24. If in such a case the applicant's services are sufficient to entitle him to receive a Certificate of a lower grade, provided as aforesaid he has not wilfully misrepresented the amount of his services, an Inferior Certificate may be granted to him, and the difference, if any, between the fee paid by him for the Superior Certificate and the fee payable for the Inferior Certificate, may be placed to his credit.

Must be re-examined for certificate of higher grade.

25. In such a case, when the applicant has by further service made up the amount in which he was found to be short, he must, before he can receive the higher Certificate, be re-examined in all the subjects.

Colour Tests.

26. The Local Government have made the following arrangements for the examination of persons as to their ability to distinguish colours :—*

27. Examinations in Colour are open to any person serving or about to serve in the Mercantile Marine.

28. Any person, including the holders of Certificates of Competency, or persons about to apply for Certificates of Competency, if desirous of being examined *in Colours only*, must make application to the Port Officer on Form Exn. 2ª, and pay a fee of one rupee.

29. He must on the appointed day attend for examination at the Examiner's Office; and if he passes he will receive a certificate to that effect.

30. If he fails it will be open to him to be examined again in Colours as often as he pleases on payment of the fee of one rupee at each fresh attempt.

31. The application of a *Candidate who is presenting himself for Examination for a Master's or Mate's Certificate* must be made on Form Exn. 2. Such examination will commence with the Colour test; and if the Candidate does not, at the time of making application, hold a Certificate of Competency of any grade, and should fail to distinguish correctly any of the colours used in the test, he will not be allowed to proceed with the examination in Navigation and Seamanship.

32. The fee he has paid for Examination for a Certificate of Competency will include the fee for the Colour test, and, with the exception of one rupee, will in such event be returned to him.

33. A Candidate for Examination for a Certificate of Competency who, at the time of making application, does not possess a Certificate, and who fails to pass the Colour test, may not be re-examined until after the lapse of three months from the date of his first failure. If he fails a second time, he will be allowed a third trial at the expiration of another three months from the date of his second failure. A fresh fee must be paid at each succeeding examination.

34. It is therefore obviously to the advantage of Candidates for Certificates of Competency to apply in the first instance to be examined in *Colours only* on Form Exn. 2ª.

35. A Candidate who holds a Certificate of Competency, and who, on presenting himself for Examination for a Certificate of a higher grade, is unable to pass the Colour test, will notwithstanding be permitted to proceed with the Examination in Navigation and Seamanship for the Certificate of the higher grade.

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* *See* Appendix O.

36. Should he pass this examination, the following statement will be written on the face of the higher Certificate which may be granted to him, viz.—"This Officer has failed to pass the Examination in Colours."

37. Should he ultimately fail to pass the Examination in Navigation and Seamanship, a like statement, relating to his being Colour blind, will be made by the Port Officer on his existing Certificate before it is returned to him.

38. Holders of Certificates which bear the statement of their having failed to pass in Colours, and who may desire to have the statement removed from their Certificates, must obtain the special permission of the Government.

Qualifications for Certificates of Competency for a Home Trade Ship.

40. All Candidates for Certificates of Competency must first be examined in Colours.*

41. A MATE must be not less than 19 years of age, and have served four years at sea.

No candidate will be allowed to be examined unless he has served two years at sea within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

42. IN NAVIGATION, &c.—He must write a legible hand, and understand the first five rules of arithmetic, both simple and compound. He must be able to take a bearing by compass, and be conversant with the use of Mercator's chart, and be able to find, on either a "true" or "magnetic" chart,† the course to steer, and the distance from one given position to another; to find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of the ship from the object at the time of taking the second bearing.

43. He must also pass an examination in the International Code of Signals.‡

44. IN SEAMANSHIP, &c.—He must possess a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog and sound signals.§ He must be able to describe the signals of distress, and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals;‖ also the use and management of the rocket apparatus in the event of his vessel being stranded. He must be able to mark and use the lead and log lines, to moor and unmoor a vessel, and to manage a ship's boat in heavy weather, &c., &c. He must also understand the construction, use, and action of the bulkhead sluices, the engine-room telegraph, &c., and to answer any other questions of a like nature appertaining to the duties of the Mate of a Home Trade Vessel which the Examiners may think proper to put to him.

45. A MASTER must be not less than 20 years of age, and have served five years at sea, of which one year must have been as First or Only Mate in the Home or Foreign Trade, during which service he must have been in possession of a Mate's Certificate for Home Trade Ships or of a First or Only Mate's Certificate for Foreign-going Ships. *Vide also para.* 19.

No candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

* *See* Appendix F.

† *See* Appendix D. The terms "true" and "magnetic" are used throughout the Regulations for the sake of brevity and convenience for indicating charts that have compasses engraved upon them, showing the "true" or "magnetic" point of the compass respectively.

‡ *See* Appendix A.

§ *See* Appendix B.

‖ *See* Appendix C.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

46. In Navigation, &c.—In addition to the qualifications required of a Mate of a Home Trade Ship, a Master will be required to find on a chart the course to steer by compass in order to counteract the effect of a given current, and to find the distance the ship will make good towards a given point in a certain time, and to *work out practically* the correction to apply to soundings taken at a given time and place, to compare with the depth marked on the chart,* &c. He will also be required to understand the use of the quadrant, to be able to observe with it, to read *off* and *on* the arc, and to find the index error by the horizon. He will also be required to find the latitude by a meridian altitude of the sun, and to give written answers (*vide supplementary viva voce test, page* 40) to certain practical questions on the subject of the deviation of the compass.†

47. In Seamanship, &c.—In addition to the qualifications required of a Mate of a Home Trade Ship, a Master must understand how to rig a sea anchor, and what means to apply to keep a steamer with machinery disabled out of the trough of the sea, &c. How to get a cast of the lead in heavy weather, &c. He will be examined as to his resources for the preservation of the crew and passengers in the event of wreck, and the steps to be taken if his vessel is disabled and drifting towards a lee shore, and will be required to answer any other questions appertaining to the management of Home Trade Vessels which the Examiner may think necessary to put to him.

Failure.

Re-examination in case of failure

48 In all cases of failure the Candidate must be examined *de novo*. If a Candidate fails in *Seamanship*, he will not be re-examined *until after a lapse* of six months. Whether the whole or part of this period must be served at sea must depend upon the subjects in Seamanship in which the Candidate failed, but what amount (if any) of sea service will be required will be left to the discretion of the Port Officer, subject, however, to revision by the Government should they see fit.

49. The Examiners in making out their Report on Form Exn. 14 should state what amount (if any) of further sea service the Candidate must perform, and they should also insert this information under Division H in Form Exn. 2.

50. If he fails three times in *Navigation* he will not be re-examined until after a lapse of three months from the date of the *last failure*.

Certificate of a lower grade.

51. If a Candidate has failed in his Examination, but the subjects in which he has failed are not included in the subjects required for a certificate of a lower grade, he may, if he desires it, receive a certificate of such lower grade.

52. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled, for re-examination for the higher grade of Certificate he will be required to pay a further full fee.

53. If a Candidate fails for bad spelling or writing, he will not be re-examined until after a lapse of at least three months.

Fees.

54. Candidates for examination, in making their application on Form Exn 2, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause, except failure to pass the colour tests, not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as

* *See* Appendix D.
† *See* Appendix E.

the case may be, they will be allowed to again present themselves for examination for a Certificate of the same grade without paying any further fee.

55. The fee for examination must be paid to the Port Officer. In any case in which a Candidate offers money to any other officer, and in any place but in the Port office, the Candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be again examined for twelve months. Fees to be paid by applicants for examination.

56. If a Candidate fail in his examination, *no part of the fee he has paid will be returned to him.* Fees to be paid by applicants for examinations. 133.

57. The fees are as follow:—

For "Home Trade Ships."

	Rs.
Mate	6
Master	12
For the renewal of any certificate ...	5

General Instructions to Examiners and Candidates.

58. All instruments necessary for use in the examinations are supplied by the Government. Instruments used in examinations.

59. Before commencing the examination, the tables or desks must be cleared of all scraps of paper or books that are not used in the examination, and care should be taken that the candidates do not bring into the examination room any book, paper, document or memoranda of any description whatever. No person whatever should be allowed in the room during the time of examination, but those whose duties require them to be present. Prohibited books and papers.

60 No instructors will be allowed on the premises.

61. Candidates will under no pretence whatever be allowed to leave the premises while the examination is proceeding. If a candidate has occasion to visit the retiring room, he will only be allowed to do so on the completion of the paper on which he may be engaged, when he will be required to enter in a book kept for the purpose the exact times of his leaving and returning to the examination room. When only a few candidates are under examination, two persons will not be allowed to leave the room at the same time. Candidates not to leave premises during examination.

62. Candidates should be so placed as to prevent one copying from the other, and no communication whatever between the Candidates should be allowed. Position of Candidates at examination

63. If any blotting paper is allowed, it should be black; and when the first examination paper is issued, each Candidate should be furnished with a piece, which must be returned to the Examiner upon the completion of the last paper. Blotting paper.

64. The examination papers should be issued to the Candidates in half sheets only, and one at a time. This will prevent a Candidate from spreading out the sheets on the table in an apparently careless manner, but so as to enable his nearest neighbour to look over and copy, or examine the problems It will also enable the Examiner to look over and report upon the work on one half sheet, while the Candidate is at work upon another, and so on. When the errors are not too numerous, or when they are not from ignorance of the subject, the incorrect problems may be returned to the Candidate for correction, but in no case should the errors be pointed out by the Examiner, neither should any marks be made on the correct work of the problem, which would at once indicate how far or to what extent the work is correct. Should the problems be returned to the Examiner the second time incorrect, this would be a failure; and as the time allowed is considered ample for working out the papers carefully, this rule is expected to be strictly observed. How examination papers should be issued.

65. When from the large number of the candidates it may be found impossible to look over the work on the day of examination during the office hours, an hour in the morning of the following day may be allotted for the purpose of correcting the problems, but In certain cases problems may be corrected on morning following examination day.

in no case should a Candidate have his problem returned to him for correction after he has made the second attempt.

Viva voce examination.

66. In the *viva voce* examination a reasonable time should be allowed for the Candidate to give his answers. No assistance should be given or leading question put.

Minor corrections.

67. All outstanding or minor corrections should appear in the margin of each problem paper; also on the chart papers Exn 9C and Exn. 9D; and unless all these corrections appear on the papers of the Candidate, they will not be considered complete.

Examination to commence with that for Second Mate.

68. In every case the examination, whether for Only Mate, First Mate, Master, is to commence with the problems for Second Mate.

Problems required as tests.

69. Examiners should bear in mind that the problems to be performed are required as tests, and for the purposes of an Examination, and not for sea-going or practical purposes alone.

70 The Candidates will be allowed to work out the various problems according to the method and the tables they have been accustomed to use.

Time allowed for Problems and Writings.

71. The rules as to the amount of time allowed are as follow: —

72 *Candidates for Home Trade Mate's Certificates* must complete the whole of their arithmetical and chart papers within *eight hours*, and Candidates for Home Trade Masters' Certificates within *ten hours*.

Additional time allowed in special cases.

73 Punctually at the expiration of the prescribed time all the papers should be called up, whether completed or not, and if not completed the Candidate will be declared to have failed, unless the Examiner see fit to lengthen the period in any special case. If, however, the period is lengthened in any case, the special circumstances of that case, and the reasons for lengthening the period, together with the time allowed, must be reported to the Government by the Examiner, in the column for "remarks" on the Form Exn. 14. It should be noted that the periods prescribed in the foregoing paragraphs are not intended to include the time occupied by the *viva voce* part of the examination

74. It is anticipated that but few of the Candidates for Certificates of Competency will require the whole of the time herein allowed for completing their examination in navigation; and ample time has been prescribed, so that Candidates may perform their work in a careful, clear and legible manner, and to the entire satisfaction of the Examiners.

Supplementary viva voce Examination on written Papers.

75. An impression prevails in regard to the examination of Masters and Mates, that so long as a Candidate can commit to paper correct answers to the various questions requiring written answers (*e. g., Forms Exn. 4a, Exn. 7, Exn. 9a, Exn. 9c, Exn. 32*, &c.), no matter how indicative the answers may be of their having been learnt off by rote *only*, the duty and responsibility of the local Examiners are at an end, and that they have no power or authority to reject a Candidate should his written answers be correct.

76. Lest, therefore, such an impression should prevail, the Government wish to point out that Candidates for Certificates of Competency are not only expected to give correct written answers, which may merely be learnt off by rote, but they are expected to possess an intelligent knowledge of the various subjects prescribed in the Regulations, particularly as regards the important subject of the Deviation of the Compass.

77. This result may be easily attained by the Examiner putting a few *viva voce* questions to the candidate as the papers are brought up for inspection, or at any subsequent time if more convenient. The oral questions (suggested by the printed questions and the answers given) should be such that the Examiner may satisfy himself that the candidate possesses a real knowledge of what he has written, and should be confined strictly to the subjects of the printed questions. Should the candidate then exhibit ignorance of the subjects, the Examiner (who is in a position to judge of the real knowledge the man before him possesses) should deal with him at his discretion, notwithstanding that the candidate may have written all the answers correctly by rote.

78. When an Examiner finds it necessary to fail a Candidate in this *supplementary viva voce* test, a memorandum containing the particulars of the points on which the candidate was ignorant, *i.e*, *the identical questions and the identical answers given*, must in each case be attached to his examination papers, when forwarded in the usual course to the Port Officer, or the particulars may be set forth by the Examiner in the margins of the candidate's papers in red ink.

79. If the Candidate passes he will receive the Form Exn. 16, upon which the Government will issue the certificate to the Candidate, whose testimonials, &c., will be returned at the same time. Form Exn. 16. Completion of examination.

Special Notice to Candidates.

80. The attention of Candidates is specially called to the following Regulations:—

81. Candidates are required to appear at the examination-room punctually at the time appointed.

82. Candidates are prohibited from bringing into the examination-room books, paper, or memoranda of any kind whatever. The slightest infringement of this regulation will subject the offender to all the penalties of a failure, and he will not be allowed to present himself for re-examination for a period of three months.

83. In the event of any Candidate being detected in defacing, blotting, writing in, or otherwise injuring any book or books belonging to the Government, the papers of such Candidate will be detained until the book or books so defaced be replaced by him. He will not, however, be at liberty to remove the damaged book, which will still remain the property of the Government.

84. In the event of any Candidate being discovered referring to any book or memoranda, copying from another, or affording any assistance or giving any information to another, or communicating in any way with another, during the time of examination, he will subject himself to all the penalties of a failure, and he will not be allowed to be examined for a period of six months.

85. No Candidate will be allowed to work out his problems on a slate or on waste paper.

86. No Candidate will be permitted to leave the room until he has given up the paper on which he is engaged.

87. Any Candidate who may be guilty of insolence to the Examiner or of other misconduct will render himself liable to the postponement of his examination, or, if he has passed, to the detention of his certificate for such period as the local Government may direct.

General.

88. Certificates of competency will be made and issued in the forms hereunto annexed.

89. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

90. No application from the holder of a certificate granted by the Government of Bombay to be examined for a certificate of the same legal value shall be entertained.

APPENDIX A.

EXAMINATION OF MASTERS AND MATES IN THE INTERNATIONAL CODE OF SIGNALS.

Instructions to Examiners.

The Government desire to direct the attention of the Examiners to the principal points connected with the International Code of Signals (which is to be treated as a subject in Navigation) as to which Candidates for Examination should be questioned in order to qualify for Certificates of Competency.

The Government would recommend to the Examiners a perusal of the *Report of the Signal Committee of* 1855 (which will be found at the commencement of the Signal Book), and also the *first few pages of the Book*. The information therein given will be found sufficient to make the Examiners theoretically acquainted with the characteristics of the Code, and the advantages it claims to possess over other Codes, and will enable them to appreciate and urge upon Candidates for Examination the facilities which this System of Signalling affords for easy and rapid communication.

The "comprehensiveness" and "distinctness" of the International Code are its chief recommendations.

The form of the Hoist generally indicates the nature of the Signal made, so that an observer can at sight understand the character of the Signal he sees flying.

The annexed plate gives examples which illustrate this.

The Examinations should tend to elicit a knowledge of the distinctive features of the Code above alluded to.

With this object the Examiners should make the 2, 3, and 4 Flag Signals on the Frame board which is furnished for the purpose (*always taking care first to show the Ensign and the Code Pennant at the Gaff*),* questioning the Candidates as to the distinguishing Forms of the respective Hoists, *(see Plate annexed)*, which will be indicated according as a Burgee, or a Pennant, or a Square Flag, is uppermost.

The Candidate ought to know how to find in the Signal Book the communication or the inquiry he desires to make, and how to make the Signal. The Signal to be made should *invariably* be sought for by the Candidate in the Vocabulary and Index, Part II, and never in Part I

The Candidate ought to know how to interpret a Signal.

The Examiner should place a Signal on the Frame board, and vary the Signal by showing a 2 or 3 Flag Signal, or a "Geographical" or a "Vocabulary" Signal, or the name of a Merchant Ship or a Ship of War.

The two latter signals would not of course be found in the Signal Book. The Candidate ought to point them out in the *Code List of Ships*.

A Candidate ought to be able to read off a Signal at sight, so far as to name the Flags composing the Hoist.

He ought to know the use of the Code Pennant, and of the Pennants C. and D., "Yes" and "No."

The Candidate should be practised in the use of the Spelling Table, by being made to spell his own name, or some word not to the Vocabulary of the Code.

A knowledge of the Distant Signals should be required of the Candidate, their object and the mode of signalling by the Distant Code, which will be found at the end of the Signal Book.

For this purpose two Black Balls, two Black Square Flags, and two Black Pennants will be furnished with the Frame board, and the Candidate should be required to make one or two Distant Signals, and to read off one or two made by the Examiners.

The Ball being the distinguishing symbol of the Distant Signal, any Pennants or Flags of the Code may be employed in conjunction with it, irrespective of colour. The Black Pennants and Flags are merely sent as showing best in the light background of the Frame board.

The Examiners should be careful to ascertain that the Candidate possesses a knowledge of the Distress Signals which came into operation November 1st, 1873.

Semaphores.

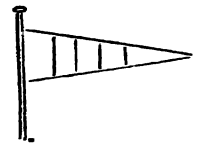
A plate at the end of the Signal Book explains the method by which the arms of the Semaphore are made to represent by their position (up, down, or horizontal) the three symbols used for Distant Signalling, viz., a Flag, a Ball, or a Pennant. Before making Signals with the Semaphore, the Black Disc with the white rim should be placed on the top of the Semaphore Mast, as it properly forms a part of the Mast itself.

The International Code is used on board Her Majesty's Ships, and it has been adopted by all the principal maritime powers for their Imperial as well as for their Mercantile Navies.

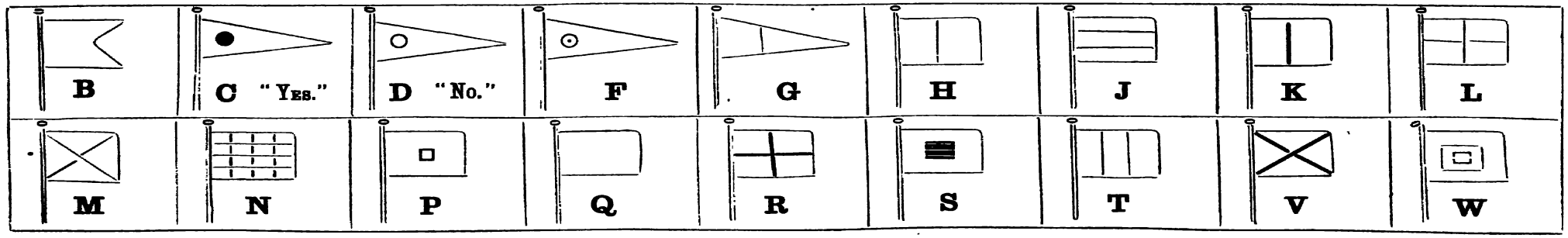
Note.—The International Code of Signals, with the Code List, is prepared by the Registrar-General of Shipping and Seamen, and may be had of the Publishers, Messrs. Spottiswoode & Co.,

* The object of this is, of course, to distinguish the Signals from those of another

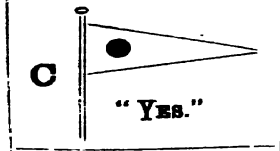
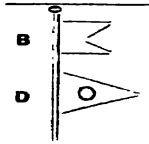
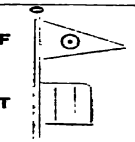
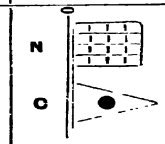
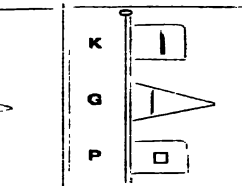
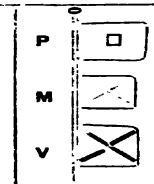
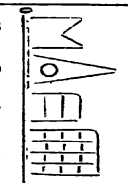
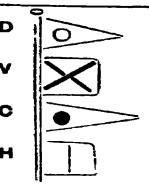
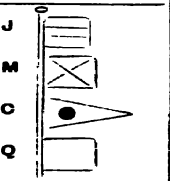
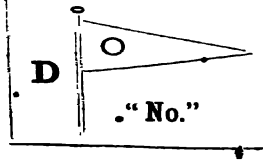
FLAGS OF THE INTERNATIONAL CODE OF SIGNALS.

"CODE SIGNAL" AND  "ANSWERING PENNANT."

N.B.—When used as the "Code Signal," this Pennant is to be hoisted under the "Ensign;" when used as the "Answering Pennant," where best seen.



The following examples will serve to illustrate how the *form of a Hoist* will usually denote the *nature of the Signal* made :—

ONE FLAG.	TWO FLAGS.			THREE FLAGS.		FOUR FLAGS.			
	BURGEE uppermost, "ATTENTION" Signals.	PENNANT uppermost, "COMPASS" Signals.	SQUARE FLAG uppermost, "URGENT" Signals.	General Signals.		BURGEE uppermost, GEOGRAPHICAL Signals.	PENNANTS C,D,F uppermost, NATIONAL VOCABULARY.	PENNANT G uppermost, Names of MEN-OF-WAR.	SQUARE FLAG uppermost, Names of MERCHANT SHIPS.
 C "YES."	 B D	 F T	 N C	 K G P	 P M V	 B D T N	 D V C H	 Q S M W	 J M C Q
 D "NO."	WHAT SHIP IS THAT?	W. BY S.	IN DISTRESS, WANT ASSISTANCE	ENGINE BROKEN DOWN.	CALL FOR ORDERS OFF—.	FALMOUTH.	WHAT SHIPS HAVE YOU SPOKEN?	"MARLBOROUGH" SCREW—131 GUNS.	"MARCO POLO," No. 6025.

54, Gracechurch Street, London, and the principal Booksellers at the various ports

The Official Mercantile Navy List and Maritime Directory published for the use of Merchants, Shipowners, Shipbrokers, and others, may be obtained in like manner; price 12*s*.

APPENDIX B.

REGULATIONS RESPECTING LIGHTS AND FOG SIGNALS AND STEERING AND SAILING RULES ISSUED BY THE BOARD OF TRADE.

NOTICE.

The Board of Trade have had their attention drawn to the necessity of a more strict examination of applicants for Certificates of Competency in their knowledge of the regulations for preventing collisions at sea.

In order that the rule of the road at sea may be better understood, and that a uniform system of examination may prevail, the Board of Trade have issued the following catechism.

This catechism has received the approval of the Trinity House and Admiralty in England, and of the Council of the Admiralty of France.

The Board of Trade attach very great importance to a thorough knowledge of the steering and sailing rules on the part of every applicant for a Certificate of Competency, and a thorough examination on the part of the Examiners.

All applicants for examination, whether for certificates as masters or mates, are to be examined as to their knowledge of the steering and sailing rules each time they present themselves for examination.

Questions suggested by the following heads of examination are to be asked in addition to, and are not to supersede, any other questions proper and necessary to be asked by the Examiner.

The following questions need not be adhered to literally by the Examiner, and are not all to be asked; but the substance of the leading questions should be asked, and all that are asked should be satisfactorily answered, before an applicant is reported to have passed his examination. The Examiner should make such a selection of the questions as each case appears to him to require.

THOMAS GRAY,
Assistant Secretary.

Board of Trade,
Marine Department.

HEADS OF EXAMINATION IN REGULATIONS RESPECTING LIGHTS AND FOG SIGNALS AND IN THE STEERING AND SAILING RULES.

1. What light or lights are required by the regulations to be exhibited by sailing vessels at anchor?

One light only, viz., a white light.

2. What light or lights are required by the regulations to be exhibited by steam-ships at anchor?

The same as for sailing vessels

3. Where is the anchor light to be exhibited?

Where it can best be seen. It must of course be placed where there is the least possible chance of obstruction from spars, ropes, &c., &c.

4. To what height may the anchor light be hoisted?

It may be exhibited at any height where it can best be seen, not exceeding 20 feet above the deck.

5. What is the description of the lantern containing the anchor light required by the regulations?

A globular lantern of not less than eight inches in diameter.

6. In what direction or directions must the anchor light show?

It must show a clear, uniform, and unbroken light, visible all round the horizon.

7. At what distance must it be visible?

At least one mile.

8. What is the number of lights required by the regulations to be carried by sailing ships when under weigh at night?

Two side-lights, and to have in readiness a white light or a flare-up light to show from their stern to any vessel overtaking them.

9. Of what colour are these lights, and how are they to be placed on board the ship?

A green light on the starboard side, and a red light on the port side.

10. What description of light must be shown from the sides of sailing vessels under weigh; and over how many points of the compass, and in what directions, and how far, are they required to show.

Each light must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass;

so fixed as to throw the light from right ahead to two points abaft the beam on the starboard and port sides respectively; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

11. What lights are they to carry when being towed at night?

The same.

12. Are the side-lights required to be fitted with screens; and if so, of what length, and how?

Yes, on the inboard side; at least three feet in length, measuring forward from the light. They are to be so fitted as to prevent the coloured lights from being seen across the bows.

13. What is the number of lights required by the regulations to be carried by steam-ships when under steam at night?

Three lights, and to have in readiness a white light or flare-up light to show from their stern to any vessel overtaking them.

14. Of what colour are these lights, and how are they to be placed on board the ship?

A white light on or in front of the foremast at a height above the hull of not less than 20 feet; and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth. A green light on the starboard side, and a red one on the port side.

15. Over how many points of the compass, in what direction, and how far, is the foremast-head light of a steamer required to show?

Over 20 points, viz., from right ahead to two points abaft the beam on both sides. It must be of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

16. Are the side-lights required to be fitted with screens; and if so, of what length?

The green and red lights are to be fitted with screens on the inboard side, extending at least three feet forward from the light, as in the case of sailing vessels.

17 Over how many points of the compass, in what directions, and how far, are the coloured side lights of steamers required to show?

The side-lights must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass, on each side of the ship, *i.e.*, from right ahead to two points abaft the beam on the starboard and port sides respectively, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles.

18. What description of lights are steamers required by the regulations to carry when they are not under steam, but under sail only?

Side-lights only, the same as sailing vessels.

19. What exceptional lights are to be carried by small sailing vessels in certain cases?

Whenever, as in the case of small vessels during bad weather, the green and red side lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

20. What description of lights are pilot vessels required to carry when on their stations on pilotage duty?

A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

21. What description of lights are pilot vessels required to carry when not on their station on pilotage duty?

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

22. What lights are open boats and fishing vessels of less than 20 tons net registered required to carry when under way and not actually engaged in fishing.

Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

23. What lights are fishing vessels and fishing boats of 20 tons net register, or upwards, required to carry when under way and not actually engaged in fishing?

They must carry similar lights to those of other ships when under way.

24. What lights are steam trawlers of 20 tons gross register, or upwards, whilst actually engaged in trawling, and not being stationary, required to carry?

All steam-vessels engaged in trawling must carry either one of the two following arrangements of lights, whichever of the two may be the more convenient:—

(*a*) The usual green and red side-lights, and foremast head light, similar to those carried by other steamships; or

(*b*) They must carry on or in front of the foremast head, and in the same position as the white light which other steamships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side; such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: and (2) a white light in a gobular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform, and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet, nor more than 12 feet.

25. What lights are sailing trawlers whilst actually engaged in trawling, and not being stationary, required to carry.

All sailing vessels, of whatever tonnage, whilst engaged in trawling, must carry either one of the three following arrangements of lights, whichever of the three, (*a*), (*b*), or (*c*), may be the most convenient:—

(*a*) They may carry the green and red side-lights similar to those of other sailing ships; or

(*b*) They may carry on or in front of the foremast head a lanthorn having a green glass on the starbord side and a red glads on the port side, so constructed, fitted, and arranges that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft the beam on the port side; and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet; or

(*c*) They may carry a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed at to show a clear, uniform and unbroken light all round the horizon, and visible on a dark night, with a clear atmosphere, for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by, another ship or vessel in sufficient time to prevent collision.

26. What lights are vessels whilst actually engaged in drift net fishing required to carry?

All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than 5 feet and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night, with a clear atmosphere, for a distance of not less than 3 miles.

27. What lights are vessels whilst actually engaged in line fishing required to carry?

A vessel engaged in line fishing is required to carry the same lights as a vessel engaged in drift net fishing.

28. If a vessel, when fishing, becomes stationary in consequence of her gear getting fast to a rock or other obstruction, what signal must she make?

She must show the same light, and if a fog, mist, or falling snow prevail, she must make the same fog signal, as if she were at anchor.

29. What lights are fishing vessels and open boats required to exhibit when at anchor?

Between sunset and sunrise they must exhibit a white light, visible all round the horizon at a distance of at least one mile, the same as any other vessel.

30. What sound signals are fishing vessels required to make whilst engaged in fishing in thick weather?

In fog, mist, or falling snow, a drift net vessel attached to her nets, and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

31. May fishing vessels and open boats use flare-up lights, and if so, at what part, or parts, of the vessel should they be exhibited?

Yes. Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

32. Do these regulations referring specially to fishing vessels and boats apply to foreign vessels, and to all parts of the world?

No, with the exception of the *first paragraph* of Article 10 of the regulations, they apply only to British vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre.

33. What lights are steam-ships required to carry when towing other ships?

A steam-ship, when towing another ship, shall, in addition to her side lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light which other steam-ships are required to carry.

34. What light is a ship which is being overtaken by another required to show?

A ship which is being overtaken by another shall show from her stern to such last mentioned ship a white light or a flare-up light.

35. Describe the lights and the day signals that vessels employed in laying or picking up a telegraph cable are required to carry.

A ship, whether a steam-ship or a sailing-ship employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line over one another, not less than six feet apart; the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than her foremast head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

36. Describe the lights and the day signals that vessels which from any cause are not under command are required to carry.

A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over than other, not less than three feet apart, and of such a charater as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of but not lower than her foremast head, three black balls or shapes, each two feet in diameter.

37. Are the above-mentioned ships to carry side-lights?

The above ships, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

38. What are the previous mentioned shapes and lights intended to indicate to approaching ships?

These shapes and lights are to be taken by approaching ships as signals that the ship using them is not under command, and cannot therefore get out of the way.

39. Do these rules prevent squadrons and convoys from carrying special lights?

No. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war, or for ships sailing under convoy.

40. What sound signals are steam-ships and sailing ships required by the regulations to be provided with?

A steam-ship shall be provided with a steam whistle or other efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by a bellows or other mechanical means, and also with

an efficient bell. A sailing ship shall be provided with a similar fog-horn and bell.

41. When are these signals to be used?

In fog, mist, or falling snow, whether by day or night.

42. What sound signal is to be made by steam-ships and sailing ships when not under way?

A steam ship and a sailing ship when not under way shall, at intervals of not more than two minutes, ring the bell.

43. What sound signal is required to be made by a steam-ship when under way?

A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes a prolonged blast.

44. What sound signals are required to be made by sailing ships when under way?

A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

45. Do the regulations require ships to take any other precaution during thick weather?

Yes. Art. 13 says every ship, whether a sailing ship or steam-ship, shall, in a fog, mist, or falling snow, go at a moderate speed.

46. Is it optional for a steam-ship to make any other signals with her steam whistle?

Yes; but only to vessels in sight, *i.e.*, not to vessels which are so obscured by fog, mist, or falling snow that they cannot be seen, though their whistles may be heard.

Art. 19 provides that in taking any course authorised or required by the regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz:—

One short blast to mean "I am directing my course to starboard."

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern"

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

47. What precaution is to be taken by steamers approaching another vessel?

If there is risk of collision, the steamer is to slacken speed, or, if necessary, stop and reverse.

48. If you see two white lights in a vertical line one over the other, what do they denote as regards the vessel carrying them?

They denote the presence of a steamer towing with her side lights not within sight on account of distance, fog, &c.; or a vessel end on to me engaged in drift net fishing, or in line fishing or it may be a steam trawler end on, or within two points of being end on, to me.

49. If you see a green, or a red, light with a white light below, what do they denote?

They denote the presence of either a sailing, or a steam, vessel engaged in trawling.

50. If you see both the green and red lights with a white light below them, what do they denote?

They denote the presence of a sailing trawler coming end on to me.

51. If you see a white light alone, what does it denote as regards the ship carrying it?

It denotes the presence of a vessel or boat at anchor; or a pilot vessel on her station; or the mast-head light of a vessel, under steam, with her side-lights not within sight on account of distance fog, &c.; or a fishing vessel stationary through her gear getting fast to some obstruction, or a sailing trawler engaged in trawling (1) under one arrangement of lights heading so that her side-lights are obscured, (2) under another arrangement from the red pyrotechnic light not having been exhibited, or it may be a light shown from the stern of a vessel which is being overtaken.

52. If you see a green or a red light without a white light, or both a green and a red light without a white light, is the vessel carrying the light or lights seen, a vessel under steam or a vessel under sail?

A vessel under sail?

53. How do you know?

Because there is no white mast-head light.

54 If you see a white light over a coloured light, is the vessel a vessel under sail or a vessel under steam?

A vessel under steam. The mast-head light denotes that the vessel is under steam.

[The Examiner will then take one model of a vessel, which he will place on the table, and call it A. He will then take the mast or stand with a white and red ball on it and place it at the other end of the table and call it B.

The Examiner should be careful that the model of one vessel only is used when the questions numbered 55 to 60 are asked.]

55. A is a steamer going north, seeing a white light and red light right ahead at B. Are A and the vessel B showing the two lights meeting end on or nearly end on, or is B passing A, or is B crossing the path of A, and in what direction, and how do you know?

Passing to port, because if I see a red light ahead, I know that the head of the vessel carrying that red light must be pointing away

in some direction to my own port or left hand. The ship showing the red light has her port or left side more or less open to A.

66. If A is going north, within what points of the compass must the vessel B showing the white and red lights be steering?

B must be going from a little W. of S. to W. N.-W.

67. How do you know this?

Because the screens being properly fitted, I could not see the red light of B at all with the vessel's head in any other direction.

68. A is a steamer going north, and seeing a white and green light ahead. Are A and B meeting, or is B passing A, or is B crossing the course of A, and in what direction; and how do you know?

B is passing to starboard of A, because if I see a green light ahead, I know that the head of the vessel carrying that green light must be pointing away in some direction to my starboard or right hand. The ship showing the green light has her right or starboard side more or less open to me.

69. As A is going north, within what points of the compass must the vessel showing the white and green lights be steering?

B must be going from a little E. of South to E.N.E.

60. How do you know?

Because the screens being properly fitted, I cannot see the green light at all with the vessel's head in any other direction.

61. If a steamer A sees the *three* lights of another steamer B ahead or nearly ahead, are the two steamers meeting, passing, or crossing?

Meeting end on, or nearly end on.

62. Do the regulations expressly require the course of a ship to be altered to starboard in any case, and if so, when?

Yes; in the case of two steamers meeting end on, or nearly end on.

63. Do they expressly require the course of a ship to be altered to starboard in any other case; and if so, in what other?

No. It is not in any other case expressly required by the regulations.

[The Examiner should see that the candidate puts the models in the positions indicated by the question 64, and following.]

64. If a steamer A sees another steamer's red light B on her own starboard side, are the steamers meeting, passing, or crossing; and how do you know?

Crossing, because the red light of one is opposed to the green light of the other; and whenever a green light is opposed to a red light or a red light to a green light, the ships carrying the lights are, crossing ships.

65. Is A to stand on; and if not, why not?

A has the other vessel B on her own starboard side. A knows she is crossing the course of B, because she sees the red light of B on her (A's) own starboard side. A also knows she must get out of the way of B, because Article 16 expressly requires that the steamer that has the other on her own starboard side shall keep out of the way of the other.

66. Is A to starboard or to port in such a case?

A must do what is right so as to get herself out of the way of B: it is generally preferable to pass under a ship's stern rather than attempt to cross her bows, but it depends entirely on the position and relative speed of the two ships, and therefore the regulations wisely leave the giving way ship to get out of the way in any manner that may be most desirable, so always that she does get out of the way.

67. If A gets into collision by porting, will it be because she is acting on any rule?

No; the rule does not require her either to port or to star board If she ports, and gets into collision by porting, it is not the fault of any rule.

68. If a steamer A sees the green light of another steamer B on her own (A's own) port bow, are the two steamers meeting, passing, or crossing; and how do you know?

Crossing, because the green light of one ship is shown to the red light of the other.

69. What is A to do, and why?

By the rule contained in Article 22 of the Regulations, A is required to keep her course, subject only to the qualification that due regard must be had to all dangers of navigation; and that due regard must also be had to any special circumstances which may exist in any particular case rendering a departure from that rule necessary in order to avoid immediate danger. The crossing ship B on A's port side must get out of the way of A, because A is on B's starboard side.

70 A, a steamer, sees the green light of another steamer, B, a point on her A's port bow. Is there any regulation requiring A to port in such a case; and if so, where is it to be found?

There is not any.

71. Are steam-ships to get out of the way of sailing ships?

If a steamer and a sailing ship are proceeding in such direction as to involve risk of collision, the steamer is to get out of the way of the sailing ship, unless the sailing ship is overtaking the steamer.

72. What is to be done by A, whether a steamer or a sailing ship, if overtaking B?

A is to keep out of the way of B.

73. When by the rules one of two ships is required to keep out of the way of the other, what is the other to do?

To keep her course. This is absolutely necessary to enable the commander of the ship required by the regulations to keep out of the way, to act with decision and promptitude, which he cannot possibly, unless he knows what the other vessel is going to do.

74. Is there any qualification or exception to this?

Yes. Due regard must be had to all dangers of navigation, and to any special circumstances which may exist in any particular case, and require a departure from the regulations to avoid immediate danger.

75. Is there any general direction in the steering and sailing rules; and if so, what is it?

Yes, it is this: that nothing in the rules shall exonerate any ship, or the owner, master, or crew thereof, from the consequences of any neglect to carry lights, or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

76. Can you repeat article (———) of the regulations, I refer to the article containing the rule for (———)?

[The Examiner should repeat this question, naming a different article each time.]

77. What does the Act of Parliament provide as to the obligation of owners and masters in obeying the regulations respecting lights, fog signals, and steering and sailing?

Section 27 of "the Merchant Shipping Act Amendment Act, 1862," provides that owners and masters shall be bound to obey the regulations, and it also provides that in case of wilful default by the master or owner he shall be deemed to be guilty of a misdemeanor for each infringement.

78. What do breaches of the regulations imply?

If an accident happens through non-observance of the regulations, it implies wilful default on the part of the person in charge of the deck at the time, unless it is shown to the satisfaction of the court hearing the case that the special circumstances of the case rendered a departure from the rules necessary.

79. If collision ensues from a breach of the regulations, who is to be deemed in fault for the collision?

The person by whom the regulations are infringed, unless the court hearing the case decides to the contrary.

80. Is there any special rule for steam-ships navigating narrow channels?

In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which is on the starboard side of such ship.

81. Do the regulations apply to sea-going ships in harbours and in rivers?

Yes; unless there is any rule to the contrary made by a competent authority.

82. Do they apply to British ships only?

No, to foreign ships as well, with the exception of paragraphs (*a*), (*b*), (*c*), (*d*), (*e*), (*f*) and (*g*), of Article 10, which apply only to British fishing vessels.

83. Do you know where the present regulations are to be found?

Yes, in the Orders in Council of the 11th August 1884, the 30th December 1884, and 24th June 1885. Copies are given away on application to the Board of Trade.

84. Is one ship bound to assist another in case of collision?

Yes.

85. What is the penalty for default?

If the master or person in charge of the ship fails to render assistance without reasonable excuse, the collision is, in absence of proof to the contrary, to be deemed to be caused by his wrongful act, neglect, or default.

86. Is there any other penalty attached to not rendering assistance?

Yes. If it is afterwards proved that he did not render assistance, his certificate may be cancelled or suspended by the court investigating the case.

87. Is it not expected that you should understand the regulations before you take charge of the deck of a ship?

It is.

88. Why?

If I do not understand them and am guilty of default, the consequences will be very serious to me.

89. What would be a serious offence?

To cause a collision by porting the helm or doing anything not required by the regulations and without due consideration.

REGULATIONS FOR PREVENTING COLLISIONS AT SEA, ORDER IN COUNCIL OF 11TH AUGUST 1884.

Preliminary.

Art. 1. In the following rules every steam-ship which is under sail and not under steam is to be considered a sailing ship; and every steam-ship which is under steam, whether under sail or not, is to be considered a ship under steam.

Rules Concerning Lights.

Art. 2. The lights mentioned in the following Articles, numbered 3, 4, 5, 6, 7, 8, 9, 10 and 11, and no others, shall be carried in all weathers, from sunset to sunrise.

Art. 3. A sea-going steam-ship when under way shall carry—

(*a*) On or in front of the foremast, at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth, a bright white light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 20 points of the compass, so fixed as to throw the light 10 points on each side of the ship, viz. from right ahead to two points abaft the beam on either side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

(*b*) On the starboard side, a green light so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*c*) On the part side, a red light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*d*) The said green and red side-lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

Art. 4. A steam-ship, when towing another ship, shall in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position, as the white light which other steam-ships are required to carry.

Art. 5. (*a*) A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles; and shall by day carry in a vertical line one over the other, not less than three feet apart, in front of, but not lower than, her foremast head, three black balls or shapes, each two feet in diameter.

(*b*) A ship, whether a steam-ship or a sailing ship, employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular laterns, each not less than 10 inches in diameter, in a vertical line one over another, not less than six feet apart; the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than, her foremast head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

(*c*) The ships referred to in this Article, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

(*d*) The lights and shapes required to be shown by this Article are to be taken by other ships as signals that the ship showing them is not under command, and cannot therefore get out of the way. The signals to be made by ships in distress and requiring assistance are contained in Article 27.

Art. 6. A sailing ship under way, or being towed, shall carry the same lights as are provided by Article 3 for a steam-ship under way, with the exception of the white light, which she shall never carry.

Art. 7. Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessels, ready for use: and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent a collision, in such a manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

Art. 8. A ship, whether a steam-ship or a sailing ship, when at anchor, shall carry, where it can best be seen, but at a height not exceeding 20 feet above the hull, a white light, in a globular lantern of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light visible all round the horizon at a distance of at least one mile.

Art. 9. A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall

carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

Art 10. Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

The following portion of this article applies only to fishing vessels and boats when in the sea off the cost of Europe lying north of Cape Finisterre:—

(*a*) All fishing vessels and fishing boats of 20 tons not registered tonnage, or upwards, when under way and when not required by the following regulations in this article to carry and show the lights therein named, shall carry and show the same lights as other vessels under way.

(*b*) All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of th vessel shall be not less than five feet, and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night with a clear atmosphere, for a distance of not less than three miles.

(*c*) A vessel employed in line fishing with her lines out shall carry the same lights as a vessel when engaged in fishing with drift nets.

(*d*) If a vessel when fishing becomes stationary in consequence of her gear getting fast to a rock or other obstruction, she shall show the light and make the fog signal for a vessel at anchor.

(*e*) Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing, with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

(*f*) Every fishing vessel and every open boat when at anchor between sunset and sunrise shall exhibit a white light visible all round the horizon at a distance of at least one mile.

(*g*) In fog, mist, or falling snow, a drift net vessel attached to her nets and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

Art. 11. A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

Sound Signals for Fog, &c.

Art. 12. A steam-ship shall be provided with a steam whistle or other efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by a bellows or other mechanical means, and also with an efficient bell.* A sailing ship shall be provided with a similar fog-horn and bell.

In fog, mist, or falling snow, whether by day or night, the signals described in this Article shall be used as follows; that is to say—

(*a*) A steam-ship under way shall make with her steam whistle or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

(*b*) A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

(*c*) A steam-ship and a sailing ship, when not under way, shall, at intervals of not more than two minutes, ring the bell.

Speed of Ships to be moderate in Fog, &c.

Art. 13. Every ship, whether a sailing ship or steam-ship, shall in a fog, mist, or falling snow, go at a moderate speed.

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* In all cases where the regulations require a bell to be used, a drum will be substituted on board Turkish vessels.

Steering and Sailing Rules.

Art, 14. When two sailing ships are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, viz.—

(*a*) A ship which is running free shall keep out of the way of a ship which is close-hauled.

(*b*) A ship which is close-hauled on the port tack shall keep out of the way of a ship which is close-hauled on the starboard tack.

(*c*) When both are running free with the wind on different sides, the ship which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free with the wind on the same side, the ship which is to windward shall keep out of the way of the ship which is to leeward.

(*e*) A ship which has the wind aft shall keep out of the way of the other ship.

Art. 15. If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This article only applies to cases where ships are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two ships which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are, when each of the two ships is end on, or nearly end on, to the other; in other words, in cases in which, by day, each ship sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each ship is in such a position as to see both the side-lights of the other.

It does not apply, by day, to cases in which a ship sees another ahead crossing her own course; or by night, to cases where the red light of one ship is opposed to the red light of the other, or where the green light of one ship is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

Art. 16. If two ships under steam are crossing, so as to involve risk of collision, the ship which has the other on her own starboard side shall keep out of the way of the other.

Art. 17. If two ships, one of which is a sailing ship, and the other a steam-ship, are proceeding in such directions as to involve risk of collision, the steam-ship shall keep out of the way of the sailing ship.

Art. 18. Every steam-ship, when approaching another ship, so as to involve risk of collision, shall slacken her speed or stop and reverse, if necessary.

Art. 19. In taking any course authorised or required by these Regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.—

One short blast to mean "I am directing my course to starboard:"

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

Art. 20. Notwithstanding anything contained in any preceding Article, every ship, whether a sailing ship or a steam-ship, overtaking any other shall keep out of the way of the overtaken ship.

Art 21. In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such ship.

Art. 22. Where by the above rules one of two ships is to keep out of the way, the other shall keep her course.

Art. 23. In obeying and construing these rules due regard shall be had to all dangers of navigation; and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

No Ship, under any circumstances, to neglect proper Precautions.

Art 24. Nothing in these rules shall exonerate any ship, or the owner, or master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

Reservation of Rules for Harbours and Inland Navigation.

Art. 25. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbour, river, or inland navigation.

Special Lights for Squadrons and Convoys.

Art 26. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with

respect to additional station and signal lights for two or more ships of war or for ships sailing under convoy.

Art. 27. When a ship is in distress, and requires assistance from other ships or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, that is to say—

In the day-time—

1. A gun fired at intervals of about a minute;
2. The International Code signals of distress indicated by N. C.
3. The distant signal, consisting of square flag, having either above or below it a ball or anything resembling a ball.

At night—

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, throwing stars of any colour or description, fired one at a time, at short intervals.

ORDERS IN COUNCIL OF 30TH DECEMBER 1884 AND 24TH JUNE 1885.

ALTERNATIVE LIGHTS FOR TRAWLERS WHEN ENGAGED IN TRAWLING, HAVING THEIR TRAWLS IN THE WATER AND NOT BEING STATIONARY.

1884.—PART I.—STEAM-VESSELS OF 20 TONS GROSS REGISTER TONNAGE OR UPWARDS.

(1) On or in front of the foremast head and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side, such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet nor more than 12 feet.

1884.—PART II.—SAILING-VESSELS OF 20 TONS NET REGISTER TONNAGE OR UPWARDS.

(1) On or in front of the foremast head, a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft the beam on the port side: and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than lanthorn the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet.

1885. SAILING TRAWLERS OF ANY TONNAGE.

As regards sailing vessels engaged in trawling, such vessels having their trawls in the water and not being stationary in consequence of their gear getting fast to a rock or other obstruction, if they do not carry and show the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in Part 2 of the Schedule to the said recited Order in Council of the 30th of December 1884, shall carry and show in lieu of the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in paragraph 2 of the Schedule to the said recited Order, other lights as follows, that is to say:

A white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, and visible on a dark night

with a clear atmosphere for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 3) seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by another ship or vessel in sufficient time to prevent collision.

AIDS TO MEMORY IN FOUR VERSES, BY THOMAS GRAY.

1. *Two Steam-ships meeting.*

When both side lights you see ahead—
Port your helm and show your RED.

2. *Two Steam-ships passing.*

GREEN to GREEN—or, RED to RED—
Perfect safety — Go ahead!

3. *Two Steam-ships crossing*

Note.—This is the position of greatest danger: there is nothing for it but good look-out, caution, and judgment.

If to your starboard RED appear,
It is your duty to keep clear;
To act as judgment says is proper:—
To Port—or Starboard—Back,—or, Stop her!

But when upon your Port is seen
A Steamer's Starboard Light of GREEN,
There's not so much for you to do,
For GREEN to Port keeps clear of you.

4. *All Ships must keep a good look-out, and Steam-ships must stop and go astern, if necessary.*

Both in safety and in doubt
Always keep a good look-out;
In danger, with no room to turn,
Ease her, stop her, go astern.

14*th October* 1867.

APPENDIX C.

DISTRESS AND PILOT SIGNALS.

M. S. Act 1873.

The following sections, together with the schedules referred to therein, of the "Merchant Shipping Acts, Amendment Act, 1873," relate to Signals of Distress and Signals for Pilots. (*See also* "*Regulations for preventing Collisions at Sea. Article* 27.)

Signals of distress.

18. The signals specified in the first schedule to this Act shall be deemed to be signals of distress.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals, except in the case of a vessel being in distress, shall be liable to pay compensation for any labour undertaken, risk incurred, or loss sustained in consequence of such signal having been supposed to be a signal of distress, and such compensation may, without prejudice to any other remedy, be recovered in the same manner in which salvage is recoverable.

Signals for pilots.

19. If a vessel requires the services of a pilot, the signals to be used and displayed shall be those specified in the second schedule to this A

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals for any other purpose than that of summoning a pilot, or uses or causes or permits any person under his authority to use any other signal for a pilot, shall incur a penalty not exceeding twenty pounds.

Power to alter rules as to signals.

20. Her Majesty may from time to time by Order in Council repeal or alter the rules as to signals contained in the schedules to this Act or make new rules in addition thereto, or in substitution therefor, and any alterations in or additions to such rules made in manner aforesaid shall be of the same force as the rules in the said schedules.

SCHEDULES.

SCHEDULE I.—SIGNALS OF DISTRESS.

In the day time.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress in the daytime:—

1. A gun fired at intervals of about a minute;
2. The International Code signal of distress indicated by N C;
3. The distant signal, consisting of a square flag having either above or below it a ball, or anything resembling a ball.

At night.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress at night:

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, of any colour or description, fired one at a time, at short intervals.

SCHEDULE II.—SIGNALS TO BE MADE BY SHIPS WANTING A PILOT.

In the day time.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot in the day time, viz:—

1. To be hoisted at the fore, the Jack or other national colour usually worn by merchant ships, having round it a white border, one-fifth of the breadth of the flag; or
2. The International Code pilotage signal indicated by P T.

At night.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot at night, viz.—

1. The pyrotechnic light, commonly known as a blue light, every fifteen minutes; or
2. A bright white light, flashed or shown at short or frequent intervals, just above the bulwarks, for about a minute at a time.

APPENDIX D.

EXAMINATION IN CHART.

FOR ALL GRADES WHERE THE CHART IS USED (INCLUDING "HOME TRADE" CANDIDATES).

[The candidate will be required to work out the following questions on either a "true" or "magnetic" chart, * whichever may be handed to him by the Examiner; and also determine whether the chart is a "true" or "magnetic" one, and whether it is for the northern or southern, and eastern or western hemispheres.

1. Using deviation [card] [curve] † No. find the course to steer by compass from to ; also the distance.

Answer.—Compass course .
Distance .
Variation .
Deviation .

2. With the ship's head on the above-named compass course a [point] [light-house] bore by compass and bore by the same compass, find the ship's position.

Answer.—Latitude .
Longitude .

3. With the ship's head as above, a [point] [light-house] bore by compass , and after continuing on the same course miles, it bore , find the position of ship and her distance from at the time of taking the second bearing.

Answer.—Latitude .
Longitude .
Distance .

All the foregoing questions must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature .
Date .
Chart used .

ADDITIONAL FOR MASTERS (INCLUDING "HOME TRADE" CANDIDATES).

4. Find the course to steer by compass from to (*see* Question 1) to counteract the effect of a

* The terms "true" and "magnetic" are used for the sake of brevity, and convenience, for indicating charts that have compasses delineated upon them showing the "true" or "magnetic" points of the compass respectively.

† A candidate for a Master's Certificate is expected to use either a card of deviations, or a curve of deviations on a Napier's diagram, whichever the Examiner may think proper to put before him

current which set at the rate of miles per hour, the ship making by log miles per hour; also the distance the ship would then make good in hours towards

Answer.—Compass course

Distance

5. On being off took a cast of the lead; required the correction to be applied to the depth obtained by the lead line before comparing it with the depth marked on the chart.

6. What do you understand the small numbers to indicate that you see placed about the chart, and at what time of tide?

7. What do the Roman numerals indicate that are occasionally seen near the coasts and in harbours?

8. How would you find, approximately, the time of high water at any place, the Admiralty tables not being at hand nor any other special tables available?

All the foregoing questions, and those on Form Exn. 9 C., must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature

Date

APPENDIX E.

DEVIATION OF THE COMPASS.

(For Masters of Home Trade Ships.)

[The Applicant must answer in writing, on paper given him by the Examiner, all the following questions, numbering his answers to correspond with the numbers of the questions.]

1. When taking a Meridian Altitude, how do you know when the sun is on the Meridian; or, in other words, when it is noon?
2. How does the sun bear when on the meredian of an observer in these latitudes (Home Trade Limits)?
3. What do you mean by deviation of the compass, and how is it caused?
4. Having determined the deviation, how do you know when it is easterly, and when westerly?
5. Supposing the sun when on the meridian bore by your compass ——— what would be the deviation of that Compass for the direction of the ship's head at the time, the variation given on the Chart being ———?
6. How could you find the deviation of your Compass when in port, or when sailing along a cost?
7. Name some suitable objects by which you could readily obtain the deviation of your Compass, when sailing along the coasts of the Channel you have been accustomed to use?
8. The bearing of two objects when in a line with each other was found on the Chart to be ——— magnetic; but when brought in a line on board they bore ———by your Compass; required the deviation of your Compass for the direction of the ship's head at the time?
9. What means are there for checking the deviation of your Compass by night?
10. Supposing the North Star (*Polaris*) bore ——— by your Compass, what would be the deviation (approximately) of that Compass for the direction the ship's head at the time, supposing the variation given on the Chart to be ———?
11. Do you expect the deviation to change? if so, state under what circumstances?
12. What is meant by variation of the Compass, and what is the cause of it?

APPENDIX F.

INSTRUCTIONS TO EXAMINERS.

Examination in Colours.

Herewith are—

(*a*) A lanthorn having in it a lamp in which kerosine is to be burnt.

(*b*) A slide having ground glass in it.

(*c*) Nine slides, each having a coloured glass in it. The colours are as follow :—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1).
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

(*d*) Cards, five of each as follow :—

1. White
2. Black.
3. Red.
4. Pink.*
5. Green.
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (Cards.)

In conducting the examination by daylight the examiner should do it in three ways—

1. The cards should be mixed up. The examiner should then hold up each card separately, and ask the candidate to name the colour, and if the candidate does so without hesitation, he is to be regarded as having passed the day-light test.
2. If the candidate hesitates in any of his answers so as to raise a doubt in the mind of the examiner as to his ability to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap.
4. The result of the examination should be noted and recorded in each case.

Examination by Artificial light.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn; and, at least, 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked if it appears to him to have any colour, and if so, what colour ?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star* is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having "failed" if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c. ; or to name card No. 7 as red, green, or yellow ; or glass No. 2 as green blue, or yellow ; or glass No. 5 as red, pink, salmon, &c. ; or glass No. 7 as bright red or bright green ; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B.

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black, by daylight; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown), he may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Local Certificate of Competency

AS

MASTER.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of Master in the* _____ *service, I do hereby, in pursuance of Act No. I of* 1859 *of the Legislative Council of India, grant you this CERTIFICATE OF COMPETENCY.*

Given *under my* Hand and Seal,

this _____ *day of* _____ 18____.

By order of the Government of Bengal,

Under-Secy. to the Govt. of Bengal.

No. o ertifi

*Bearer*_____

*Date and Place of Birth*_____

*No. of Register Ticket*_____

*Signature*_____

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liab to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this certificate is required to transmit it forthwi to the Port Officer, Calcutta.

*Issued at Calcutta on the*_____*day of*_____18 __.

Registered.

Port Officer of Calcutta.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Local Certificate of Competency

AS

MATE.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of* _____ *Mate in the* _____ *service, I do hereby, in pursuance of Act No. I of* 1859 *of the Legislative Council of India, grant you this CERTIFICATE OF COMPETENCY.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

this _____ *day of* _____ 18——. *Under-Secy. to the Govt. of Bengal.*

No. of Certificate

Bearer _____

Date and Place of Birth _____

No. of Register Ticket _____

Signature _____

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at Calcutta on the _____ *day of* _____ 18___.

Registered,

Port Officer of Calcutta.

NOTICE.

Candidates applying to be examined for Certificates of Competency are hereby informed that no remuneration or gratuity whatever, either directly or indirectly, can be received by any Officer, Messenger, or Servant of the Government, except the lawful fees stated in the Regulations, which are to be paid to the Port Officer when the Candidate makes his application.

Any Officer, Messenger, or Servant of the Government accepting any present or gratuity is liable to summary dismissal, and any Candidate so offering money will be subject to the penalty mentioned in para. 16 of the Regulations relating to the examination of Masters, or para. 35 of those relating to the examination of Engineers and Engine-drivers as the case may be.

Every case in which an applicant has paid, or pays hereafter, any fee or gratuity to any Officer, Messenger, or Servant, on any pretence whatever, other than the prescribed fees for examination, should be reported to the Local Government.

W. B. BESTIC,

Under-Secy. to the Govt. of Bengal.

P. W. (Marine) Dept.

REGULATIONS

RELATING TO THE

EXAMINATION OF MASTERS OF INLAND STEAM-VESSELS.

Preliminary.

UNDER the provisions of the Inland Steam-Vessels Act, 1884, no inland steam-vessel having engines of eighty nominal horse-power or upwards is allowed to proceed on any voyage unless her master possesses a first class master's certificate granted under the Act, or a master's certificate granted under Act I of 1859 (*for the amendment of the law relating to merchant seamen*), or the Merchant Shipping Acts, 1854 to 1883, or a certificate to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869; and no such ship having engines of under eighty nominal horse-power is allowed to proceed on any voyage unless her master possesses a second class master's certificate granted under the Act, or a certificate of the higher grade of the nature referred to above:

Provided that a steam-vessel having engines of under eighty nominal horse-power shall be deemed to have complied with the law if she has as her master and engineer a person possessing both a second class master's certificate and an engine-driver's certificate granted under the Act

Any person who having been engaged to serve as master of an inland steam-vessel proceeds on any voyage in that steam-vessel as master without being at the time entitled to and possessed of the certificate required under the Act, and any person who employs any person as such master without ascertaining that he is at the time entitled to, and possessed of, the certificate required under the Act, is liable to be punished with fine which may extend to *five hundred rupees.*

NOTIFICATION.

No. 27 Marine, dated Calcutta, the 31st January 1890.

UNDER the powers conferred upon him by section 29 of the Inland Steam-Vessels Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to masters of inland steam-vessels.

W. B BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose arrangements have been made for holding examinations periodically at the port of Calcutta.

Examinations continued till all the candidates are examined.

2. The examinations will be held by the Port Officer and one or more other examiners to be appointed by the Government from time to time They will commence early in the forenoon, and will be continued from day to day until all the Candidates whose names appear upon the Port Officer's list on the day of examination are examined.

3. Candidates for examination must make their application upon the appropriate form (Exn. 2*b*), which must be filled up at the Port Office. The Exn 2*b* properly filled in, together with the candidates' testimonials and discharges, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials of character, conduct, and ability required

4 Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges may have to be verified before the candidate can be examined, it is desirable that they should be handed in, together with the Forms Exn 2*b*, as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners and of British seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits; and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificates as to Age.

6. Should any doubt exist as to the age of a candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel. In the case of natives of India, who may not be able to speak English, their certificate shall be endorsed to the effect that they are valid only for vessels manned and officered entirely by Asiatics.

Colour Tests.

8. The Government have made the following arrangements for the examination of persons as to their ability to distinguish colours :—*

9. Examinations in Colour are open to any person serving or about to serve in the Mercantile Marine.

10. Any person, including the holders of Certificates of Competency, or persons about to apply for Certificates of Competency, if desirous of being examined *in Colours only*, must make application to the Port Officer on Form Exn. 2*a*, and pay a fee of one rupee.

11. He must on the appointed day attend for examination at the Examiner's Office; and if he passes he will receive a certificate to that effect.

12. If he fails it will be open to him to be examined again in Colours as often as he pleases on payment of the fee of one rupee at each fresh attempt.

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* *See* Apendix A.

13. The application of a *Candidate who is presenting himself for Examination for a Master's Certificate* must be made on Form Exn. 2*b*. Such examination will commence with the Colour test; and if the Candidate does not, at the time of making application, hold a Certificate of Competency of any grade, and should fail to distinguish correctly any one of the colours used in the test, he will not be allowed to proceed with the examination

14. The fee he has paid for Examination for a Certificate of Competency will include the fee for the Colour test, and, with the exception of one rupee, will in such event be returned to him.

15. A candidate for Examination for a Certificate of Competency who, at the time of making application, does not possess a Certificate, and who fails to pass the colour test, may not be re-examined until after the lapse of three months from the date of his first failure. If the fails a second time, he will be allowed a third trial at the expiration of another three months from the date of his second failure. A fresh fee must be paid at each succeeding examination.

16. It is therefore obviously to the advantage of Candidates for Certificates of Competency to apply in the first instance to be examined in *Colours only* on Form Exn. 2[a].

17. A Candidate who holds a Certificate of Competency, and who, on presenting himself for Examination for a Certificate of a higher grade, is unable to pass the Colour test, will notwithstanding be permitted to proceed with the Examination for the Certificate of the higher grade.

18. Should he pass this examination, the following statement will be written on the face of the higher Certificate which may be granted to him, viz.—"This Officer has failed to pass the Examination in Colours."

19. Should be ultimately fail to pass the Examination, a like statement, relating to his being Colour blind, will be made by the Port Officer on his existing Certificate before it is returned to him.

20. Holders of Certificates which bear the statement of their having failed to pass in Colours, and who may desire to have the statement removed from their Certificates, must obtain the special permission of the Government.

Qualifications for Certificates of Competency as First Class Masters.

21. *Examination in Colours.*—All candidates for certificates of competency must first be examined in colours.*

22. A candidate for a certificate as first class master of inland steam-vessels must be not less than twenty-four years of age, and must have served as a second class master in charge of a steam-vessel for not less than three years, or he must be not less than twenty-two years of age, hold a certificate of competency as second mate granted under Act I of 1859 (for the amendment of the law relating to Merchant Seamen) or the Merchant Shipping Acts 1854 to 1883, or a certificate to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869, and have served as Mate of an inland steam vessel or master of a river flat for not less than one year.

23. Each candidate will be examined apart, and *viva voce*, in each and all of the following subjects:—

(1)—The rules of the road.
(2)—The management of river steamers under all contingencies.
(3)—The tide table.
(4)—Storm signals.
(5)—The provisions of Act VI of 1884, and the rules framed under sections 21, 29, 50 and 51 of the Act.

Qualifications for Certificates of Competency as Second Class Masters.

Examination in Colours.—All candidates for certificates of Competency must first be examined in colours.*

24. A candidate for a certificate as second class Master of an inland steam-vessel must not be less than twenty-one years of age and must produce satisfactory certificates of

* See Appendix A.

sobriety and intelligence, and that he has served three years as Mate of a small steam-vessel or as chief helmsman of a steam-vessel of over 80 horse power, and shall be examined *viva voce* as to his knowledge in the following subjects: –

(1)—The rules of the road.
(2)—The management of small river steamers.
(3)—Storm signals.

Failure.

Re-examination in case of failure.

25. If a candidate fails, he will not be re-examined *until after a lapse* of three months from the date of such failure.

Certificate of lower grade.

26. If a candidate has failed in his examination, but the subjects in which he has failed are not included in the subjects required for a certificate of a lower grade, he may, if he desires it, receive a certificate of such lower grade.

27. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled so to do, for re-examination for the higher grade of certificate he will be required to pay again the full fee.

Fees.

28. Candidates for examination, in making their application on Form Exn. 2*b*, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials as the case may be, they will be allowed to again present themselves for examination for a certificate of the same grade without paying any further fee.

Fees to be paid by applicants for examination.

29. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected and not allowed to be again examined for twelve months.

30. If a candidate fails in his examination, *no part of the fee will be returned to him.*

31. If the candidate satisfy the examiners as to his knowledge of the prescribed subjects, and generally as to his competency to command an inland river steamer, they shall certify the same to the Government, which will then grant a certificate to the candidate

Form Exn 16. Completion of examination.

32. The fees are as follows:—

	Rs.
First Class Master	16
Second Class Master	6
Renewal of a certificate	5

General.

33. Certificates of competency of first and second class masters shall be made and issued in the forms hereunto annexed.

34. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

INSTRUCTIONS TO EXAMINERS.

Examination in Colours.

Herewith are—

(*a*.) A lanthorn having in it a lamp in which kerosine is to be burnt.
(*b*.) A side having ground glass in it.

(*c.*) Nine slides, each having a coloured glass in it. The colours are as follows:—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1).
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

(*d.*) Cards, five of each as follow:—

1. White.
2. Black.
3. Red.
4. Pink.*
5. Green
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (Cards.)

In conducting the examination by daylight the examiner should do it in three ways:—

1. The cards should be mixed up. The examiner should then hold up each card separately and ask the candidate to name the colour, and if the candidate does so without hesitation he is to be regarded as having passed the daylight test.
2. If the candidate hesitates in any of his answers so as to raise a doubt in the mind of the examiner as to his ability to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap.
4. The result of the examination should be noted and recorded in each case.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn; and, at least, 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked if it appears to him to have any colour, and if so what colour?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star* is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having "failed" if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c.; or to name card No. 7 as red, green, or yellow; or glass No. 2 as green, blue, or yellow; or glass No. 5 as red, pink, salmon, &c.; or glass No. 7 as bright red or bright green; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black by daylight; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown) the may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

FIRST CLASS MASTER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To

Mr. _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found, after examination, duly qualified to fulfil the duties of First-class Master of an Inland Steam-Vessel under Act VI of* 1884, *I do hereby grant you this CERTIFICATE OF COMPETENCY as such First-class Master.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

This _____ *day of* _____ 18____.

(117)

No. of Certificate

*Address of Owner*_____

*Date and Place of Birth*_____

*Signature*_____

Any master who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

*Issued at Calcutta on the*_____*day of*_____18____.

Registered,

Port Officer of Calcutta.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

SECOND CLASS MASTER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To

Mr. _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found, after examination, duly qualified to fulfil the duties of Second-class Master of an Inland Steam-Vessel under Act VI of* 1884, *I do hereby grant you this CERTIFICATE OF COMPETENCY as such Second-class Master.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

This _____ *day of* _____ 18__.

No. of Certificate

Bearer _____ *son of* _____ *by caste* _____

Date and Place of Birth, showing Village, Thana and District* _____

Residence, showing Village, Thana and District _____

Height _____

Personal description, stating particularly any permanent marks or scars _____

No. of Register Ticket _____

Signature _____

Any master who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

Issued at Calcutta on the _____ *day of* _____ 18____.

Registered,

Port Officer of Calcutta.

* If not known exactly must be stated on the best information or evidence.

REGULATIONS

RELATING TO THE

EXAMINATION OF ENGINEERS AND ENGINE-DRIVERS OF INLAND STEAM-VESSELS.

Preliminary.

UNDER the provisions of the Inland Steam-Vessels Act, an inland steam-vessel having engines of eighty nominal horse power or upwards cannot proceed on any voyage unless her engineer possesses an engineer's certificate granted under the Act or the Indian Steam Ships Act, 1884, or the Merchant Shipping Acts, 1854 to 1883, or to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869; and no such ship having engines of under eighty nominal horse-power can proceed on any voyage unless she has as her engineer a person possessing an engine-driver's certificate granted under the Act or the Indian Steam-Ships Act, 1884, or a certificate of the higher grade of the nature referred to above: Provided that a steam-vessel having engines of under eighty nominal horse power shall be deemed to have complied with the law if she has as her master and engineer a person possessing both a second class master's certificate and an engine-driver's certificate granted under the Act.

Any person who has been engaged to serve as Engineer or engine-driver of an inland steam-vessel proceeds on any voyage in that steam-vessel as engineer or engine-driver, as the case may be, without being at the time entitled to, and possessed of, the certificate required under the Act, and any person who employs any person as engineer or engine-driver without ascertaining that he is at the time entitled to, and possessed of, the certificate required under the Act, is liable to be punished with fine which may extend to *five hundred rupees*.

NOTIFICATION.

No. 28 Marine, dated Calcutta, the 31st of January 1890.

UNDER the powers conferred upon him by section 29 of the Inland Steam-Vessels Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to engineers and engine-drivers of inland steam-vessels.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates of competency granted to persons who pass requisite examinations.

1. Certificates of competency will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed and arrangements have been made for holding the examinations periodically at the port of Calcutta.

Examinations continued till all the candidates are examined.

2. The examinations will commence early in the forenoon and will be continued from day to day until all the candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Application how to be made.

3. Candidates for examination must make their application upon Form Exn. 3, which must be filled up at the Port Office. The Exn. 3 properly filled in, together with the candidate's testimonials, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct for at least the 12 months immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. If the service has been on shore, the testimonial must be signed by an employer; if at sea, by either the master, managing owner, chief or superintending engineer.

5. As such testimonials and discharges may have to be verified before the candidates can be examined, it is

desirable that they should be handed in, together with the Form Exn. 3, as early as possible.

Testimonials of Foreigners

6. The testimonials of servitude of Foreigners and of British Seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits; and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificate as to age.

7. Should any doubt exist as to the age of a candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

8. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel.

Verification of services, &c., by Articles.

9. Services which cannot be verified by proper entries in the articles of the ships in which the candidates have served cannot be counted.

Qualifications for Certificates of Competency as Engineers.

Qualification of candidate for Inland Engineer's Certificate.

10. A candidate must be not less than twenty-two years of age:—

(*a*) He must have served an apprenticeship to an engineer, of three years in England or five years in India, and must prove that during the period of his apprenticeship he has been employed on the making and repairing of engines. Or, if he has not served an apprenticeship, he must prove that for not less than three years in England or five years in India he has been employed as a journeyman or master-hand in some factory or workshop on the making or repairing of engines. In either case he must also have served two years thereafter in the engine room of a steamer of over 80 horse power, or as a certificated engine-driver in a steamer of less than 80 horse power.

Or failing the above service he must have served as a certificated engine-driver in charge of a steamer for not less than four years.

(*b*) He must be able to give a description of boilers, and the methods of staying them, together with the use and management of the different valves, cocks, pipes, and connections.

(*c*) He must understand how to correct defects from accident, decay, or other causes and the means of repairing such defects.

(*d*) He must understand the use of the barometer, thermometer, and salinometer, and the principles on which they are constructed.

(*e*) He must state the causes, effects, and usual remedies for incrustation and corrosion.

(*f*) He must be able to state how a temporary or permanent repair could be effected in case of derangement of a part of the machinery, or total breakdown.

(*g*) He must write a legible hand, and understand the first five rules of arithmetic, and decimals, and their application to questions about consumption of stores, and full capacities of tanks and bunkers, the duty of pumps, and the direct strains in engines and boilers.

(*h*) He must be able to pass a creditable examination as to the various constructions of paddle and screw engines in general use; as to the details of the different working parts, external and internal, and the use of each part.

Qualifications for Certificates of Competency as Engine-drivers.

11. Candidates for examination must make their application upon the appropriate Form (Exn. 3*b*), which must be filled up at the Port Office.

12. A candidate for a certificate of competency as engine-driver must have attained the age of twenty-two years.

He must have served an apprenticeship of at least four years if in India or three years in the United Kingdom, and have served as assistant engineer for one year on a steamer of not less than 80 horse power.

Or he must have been three years principal serang or tindal in the engine-room of a steamer, or have been for three years in charge of the engine of a factory or mill under a European manager or engineer, as well as one year principal serang or tindal or assistant engineer in the engine-room of a steamer under a certificated engineer.

13. He must have the testimonial shown in Appendix B filled up by the engineer with whom he has last served, or his other testimonials must contain all the particulars therein required.

14. He must pass a *viva voce* examination before the Board of Examiners as to the working of an engine and the use of its different parts.

15. He must be able, if required, to show his practical qualifications by one week's trial in a steamer after fulfilling the other tests to which he will be subjected.

General Rules as to Examinations.

16. All books necessary for the use of candidates under examination will be provided by the Government, and applicants will not be permitted to take into the examination room any book, paper, document, or memoranda of any description whatever; and, subject to the provisions referred to hereafter, they will also not be allowed to work out their problems on a slate or on waste paper. Candidates not to take books, &c., into examination room.

17. Candidates will be allowed in the time allotted to cancel any part of their work, and when required additional papers will be supplied by the Examiners. These additional sheets must be attached to, and form part of, the examination papers.

18. In the event of any candidate being discovered copying from another, or affording any assistance or giving any information to another, or communicating in any way with another during the time of examination, he will be regarded as having failed in his examination, and will be turned back for three months, in the same manner as if he had failed in the practical part of the examination; and no part of the fees he may have paid for examination will be returned to him. Punishment for breaking rules.

19. If a candidate leaves the room before answering any question which has been given to him, he cannot afterwards be permitted to answer it, but the examiners may substitute other data or another question. Leaving examination room.

20. All applicants presenting themselves for examination for certificates of competency as engineers will be required to give written answers to eight out of a list of ten questions selected from Form Exn. 15*a*,* "Elementary Questions for the first examinations of Engineers for certificates of competency" These questions are intended to furnish a record to some extent of the candidate's knowledge at the time of his examination, and also to induce the candidates to pay more attention to their handwriting and spelling. Questions from Form Exn. 15*a*.

21. The Form Exn. 15*b*., on which these answers will be written, contains also some questions as to the experience of the applicant, to be answered by him in writing.

22. Examiners may add to their *viva voce* questions on the practical management of steam engines and boilers any of those contained in Exn. 15*a*.

* *See* Appendix A.

23. If at the expiration of the time allowed the candidate has worked out correctly the whole of the questions set to him, and given satisfactory answers in the *viva voce* examination, he will be declared to have passed.

24. If at the expiration of the time allowed he has not worked out the whole of the questions set to him, but if the result of the *viva voce* examination taken in connection with the answers to such of the questions as he has worked out is sufficient to satisfy the Examiner that the applicant is competent to take charge of engines, he will be declared to have passed.

25. In other cases he will be declared to have failed.

(Exn. 15) 26. A report of the examination, and the examination papers, will be forwarded to the Government on the Form (Exn. 15).

Notification of having passed will be given to successful candidates. (Exn 16) 27. If the candidate passes, he will receive the Form Exn. 16, upon which the Government will issue the certificate to the candidate, whose testimonials, &c., will be returned at the same time. It is therefore important that the port of destination of the certificate should be the same on both the Form Exn. 16 and the Form Exn. 2. If circumstances should make any alteration necessary, the examiners should see that it is made in both forms, otherwise delay in the issue of the certificate may be caused.

Fees.

Fees to be paid by applicants for examination. 28. Candidates for examination, in making their application on Form Exn. 3 or Exn. 3*b*, will be required to pay the examination fees before any step is taken, whether by inquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them, but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be.

29. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

30. If a candidate fails in his examinations, *no part of the fee he has paid will be returned to him.*

31. The fees are as follow :—

	Rs.
Engineers	12
Engine drivers	10
Renewal of a certificate	5

Failure.

32. If the applicant fails in the *viva voce* or practical part of the examination, he may not present himself for re-examination until he can produce proofs of THREE MONTHS' further service afloat. If he fails in arithmetic or drawing only, he may come up again at any time. Engine-drivers may be examined *de novo* after six months, if the past examination showed that they might reasonably be expected to qualify.

General.

33. Certificates of competency of engineers and engine-driver shall be made out and issued in the forms hereunto annexed.

34. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

Form Exn. 15a.

ELEMENTARY QUESTIONS FOR THE FIRST EXAMINATIONS OF ENGINEERS FOR CERTIFICATES OF COMPETENCY.

To Engineer Examiners.

Examiners will require all candidates to fill up a form, Exn. 15*b*., of which a copy is enclosed, and they will forward the same to the Government along with the report of the examination.

The arithmetical questions for Engineers and the *vivâ voce* examinations for all candidates will be continued as heretofore, and failure in the elementary questions will be treated as failure in arithmetic.

The numbers of the questions for each examination will be selected by the examiners, and they are not to be communicated to the candidate until his examination commences.

Exn. 15b.

Port — Class for which examined

Date — Candidate's name

A. Where and how long did you serve in works at the making or at the repairing of Engines, and in what capacities?

B. How long have you served as fireman or trimmer?

C. How long have you served in the Engine-room at sea, and in what capacities?

D. With what descriptions of Engines have you served at sea—Paddle or Screw or both, Jet Condensing, Surface Condensing, or Non-condensing Engines, Compounds, Trunks, Inverted Cylinders, or Horizontal Engines? What size were the Engines?

E. With what descriptions of Boilers have you served at sea—Rectangular or Cylindrical, Wet-bottomed or Dry-bottomed, Multitubular, Sectional or Flue Boilers?

F. What Engine defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

G. What Boiler defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

For the questions to be answered on the following pages, *See* the book of Elementary Questions. The questions need not be written: only the answers to them.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

ELEMENTARY QUESTIONS.

1.

What parts of an engine are generally made of wrought-iron?

2.

What parts of an engine are generally made of cast-iron?

3.

For what parts of an engine is steel sometimes used?

4.

What parts of an engine are generally made of brass or gun-metal?

5.

Where is "white metal" sometimes used? On account of what property possessed by it is it adopted? What objection is there to its more general use?

6.

For what parts is Muntz metal sometimes used? Is it malleable? For what properties is it valued?

7.

What difference is there in the composition of cast-iron, of wrought-iron, and of steel?

8.

How can cast-iron, wrought-iron, and steel be distinguished from each other?

9.

What are the different properties of cast-iron, of wrought-iron, and of steel.

10.

What is meant by the terms "breaking stress," "proof stress," "safe-working stress"?

11.

What is the cohesive strength or breaking stress of good ordinary wrought-iron?

12.

Tempering steel: how is it done, and in what order do the colours come?

13.

What is case-hardening?

14.

Which of the common metals or alloys can be forged, and which of them are brittle or "short"?

15.

What is meant by "welding"? Which of the common metals can be welded?

16.

The expansion of metals by heat: give examples of this in the engine and in the boiler.

17.

In the construction of cylindrical marine boilers, for what parts have the plates to be worked hot? When the material is steel, what precautionary treatment of these plates is afterwards necessary?

18.

What is double riveting? In what parts of cylindrical marine boilers is double riveting employed? In which of the shell seams is it most necessary?

19.

What is "caulking," and how are seams prepared for caulking?

20.

Describe the different ways of fastening the ends of the main stays of a boiler. What are the merits of, or objections to, the different plans?

21.

What strain per square inch is allowed on boiler stays?

22.

Describe a riveted stay, and state where such stays are commonly used.

23.

Where are thin plates to be looked for in a boiler as it wears, and how is the thinness to be detected?

24.

How are boiler tubes fixed? What are "stay tubes," and how are they secured?

25.

Where is it generally that boiler tubes leak? How is this defect repaired? What are the causes of this leaking?

26.

What are the causes of cracked tube plates? Where are the cracks situated? How are they repaired?

27.

What is the difference between a "dry uptake" and a "wet uptake"? Which requires most repair? Why? Where have you seen a wet uptake?

28.

What is a superheater? What is its construction? What valves are on it? There is sometimes a gauge glass on it; what is that for?

29.

What parts of a marine tubular boiler are first injured by shortness of water?

30.

Where are angle irons sometimes used in the construction of a boiler, and where are flanged plates used?

31.

Priming: to what causes is it attributed? What means are applied to prevent it? What evils may be produced by it?

32.

Funnel draught: what makes it? What checks it?

33.

Flame is sometimes seen at the top of the funnel: what causes this appearance? Is it beneficial or is it detrimental? Why so?

34.

A blast pipe: what is its construction? Where is it placed For what is it used?

35.

How many bottom blow-off cocks are generally fitted to each boiler, and why are they so fitted?

36.

Blow-off cocks are sometimes fitted with a spanner guard: for what purpose is this? Describe how the guard is formed?

37.

Test cocks or water-gauge cocks: where are they placed? At what heights? Must the cocks themselves be at those heights? What provision is made for cleaning these cocks? Should they ever become choked? When there are no test cocks, how is the height of the water ascertained?

38.

What is a dead-weight safety valve? Of what are the rubbing surfaces formed? How is a lock-up valve arranged to admit of lifting it or of turning it round, and to prevent adding to the weight?

39.

About what area of safety valve is now required by the Board of Trade? What area was formerly required, and on what ground has that been altered? What is the effect of suddenly opening a safety valve when steam is up? To about what extent do safety valves rise when blowing off without being eased by hand?

40.

Spring-loaded safety valves: what advantages have they that are not possessed by dead-weight valves? What are the disadvantages as compared with dead-weight valves?

41.

Of what pieces does a glass water gauge mounting consist? How does it act? Where is it placed? At what height? Is it liable to derangement? How is its working tested?

42.

Glass water gauges have sometimes pipe connections top and bottom: what is the object of this arrangement? Should there be cocks at the extremities of these pipes?

43.

Describe a Bourdon's steam gauge. Some gauges have an inverted syphon pipe below them: what is its use?

44.

Why is a small cock sometimes put on the pipe leading to a steam gauge? Where should it be placed, and what error might be made by omitting to use it?

45.

Do steam gauges indicate the total pressure of the steam, or only a portion of that pressure? What is the pressure measured from?

46.

What is meant by the salting of the boiler? How is this prevented? What is the density of ordinary sea water? How is the density ascertained? What is the difference between the formation of scale and the salting of the boiler? What is the maximum density at which boilers should be worked at sea?

47.

Scum cocks and pipes: how are they arranged? Where are they placed? At what height in the boiler? When are they used? When must they be shut? Neglect of these cocks lead to what dangers?

48.

Scale: of what does it consist? Where is it most objectionable? How is it removed? How is its formation prevented? What evil effects are produced by it?

49.

What is a salinometer? Of what does it consist? How does it act? How is it graduated? Can it be used at any temperature indiscriminately?

50.

What harm may be done through the check valve of one of a set of boilers being defective while under way? How would you work to avoid this harm?

51.

How is the leak from a split tube stopped in a boiler at sea? Describe the operation.

52.

What is the use of dampers? Where are they fitted? When should they be used?

53.

When there are no dampers fitted, what is used instead? What evil to the boiler is sometimes attributed to this? When the heating surfaces are clean does this occur?

54.

Describe the piston of a steam cylinder, with its different rings and their uses. There are generally round pieces let in flush on one side of a piston: what are they? How are these pieces fixed?

55.

Cylinder drain cocks: what is their use? There is sometimes a valve upon each cock: what purpose does it serve?

56.

Cylinder escape valves: of what do they consist? How protected? How regulated? When are they most needed? To what danger do they expose the Engineer? What precaution is sometimes used to obviate this danger?

57.

What is a compound engine? What different kinds are there for screw steamers, in respect to the number and arrangement of their cranks and cylinders? What is a triple expansion engine?

58.

What is link motion? What are some of its advantages? In modern engines for the screw propeller when there is no link motion, what takes its place?

59.

What is a separate expansion valve? Why is it not fitted to all engines? What effect has an expansion valve upon the starting and upon the reversing of the engine?

60.

What arrangement is applied to reduce the friction of a slide valve? To what is the friction due?

61.

Describe a loose eccentric; how does it act? In what engines is the loose eccentric still employed?

62.

What is the travel of the eccentric rod? How is it measured on the eccentric? What is the travel of the slide valve when the link motion is in mid gear and the engine still moving?

63.

What are "double beat valves"? Why are they not generally used for safety valves? Are they ever used instead of the slide valve? What objections are there to their use?

64.

What is a circulating pump? Is it always worked by the main engine? Give an example from your last steamer of the three water temperatures generally noted by careful engineers.

65.

An air valve is sometimes fitted to a circulating reciprocating pump: what purpose does it serve?

66.

What is the difference between a bucket air-pump, a piston air-pump, and a plunger air-pump?

67.

Whether are double-acting air-pumps made with plungers, with pistons, or with buckets?

68.

What is an air-pump trunk? When is it necessary? How is it attached to the bucket?

69.

What class of air-pump requires both foot and delivery valves, and in what other class can either of these valves be in some cases dispensed with?

70.

When under way, when the air-pump bucket is at the top of its stroke, at what height is the water in the condenser?

71.

With a surface condenser and a single acting air-pump, what is the effect of a leaky foot valve, and what is the effect of a leaky bucket when there is also a foot valve?

72.

Air-pump pet cock or valve: where is it placed? How does it act? What is its object? Does it in every case reduce the effective capacity of the pump? Is it equally applicable to double acting pumps?

73.

At what temperature is the hot well worked? What is the effect of higher temperatures? What is the effect of lower temperatures? What limits the lowness of temperature? Has a very low temperature any disadvantages?

74.

Bilge injection with common condensers: what are the fittings required? When is it used? What precautions are necessary in using it?

75.

When surface condensers are used, what takes the place of the bilge injection? To what is the connection made? How is its valve formed? Why is this necessary?

76.

What are the practical guides to the proper amount of opening of the inlet valve for the circulating pump?

77.

Feed-pump pet cock or valve: where is it placed? What is its use? How does it act? Is it always a necessary fitting?

78.

What are some of the ways of fastening the ends of surface-condenser tubes? About what size and about what thickness are condenser tubes? What parts of a surface condenser are made of brass?

79.

What is a blow-through valve or cock? To what is it attached? There is sometimes a valve that when opened admits steam from the slide valve casing to the exhaust port: what is its use? To which cylinder is it fitted?

80.

What is a snifting valve? What is its use? Where is it placed? Can it be placed too high? Can it be placed too low? At what height should it be placed? Was there one in your last steamer; if so, where was it? Why are snifting valves generally omitted now?

81.

What connections are generally fitted to the donkey-pump, and to what services can it be applied?

82.

When the engines are stopped with steam up, what are to be shut and what are to be opened?

83.

How is an engine heated up before starting? What precautionary examinations are made before starting?

84.

What is an interceptor or catch-water? Where is it fixed; what is its construction; how does it act; and what attention does it require?

85.

Describe an air-pump bucket, with its valve or valves and its packing. Of what are the valves generally made?

86.

Of what materials are air-pump rods made? Why so?

87.

What is the racing of the engine? When does it occur? What danger attaches to it? What is done to prevent it?

88.

What are marine governors? What is their general construction? How do they act?

89.

What is meant by the "pitch" of a screw propeller? How is it measured?

90.

Explain the difference between a "right hand" and a "left hand" propeller, and state how each of them revolves.

91.

What is the slip of a screw propeller? How is its amount expressed in figures?

92.

Which of the valves about engines and boilers have to be worked by hand, which of them work self-actingly, and which are worked by the motion of the engine?

93.

Why is soda sometimes put into a boiler, and how is it put in which under way? What is the kind of soda used?

94.

Tallow cups for cylinders were sometimes made with two small cocks, or with only one small cock, or with one large hollow plug cock, or with one small cock and a valve; which of these is suitable for a high-pressure cylinder, and which for the cylinder of a condensing engine? Describe how the cup with only one small cock is used. What is now generally used instead of these? How has this change come about?

95.

Does a cylinder escape valve, self-acting, allow all the water to escape; if not, how much is left in the cylinder?

96.

What is a "Steam Lubricator" (sometimes called an Impermeator)? Explain its action; to what part of the engine is it connected; whether will throwing cold water over it make it work faster or slower? Describe the one used in your last steamer?

97.

A common paddle wheel: of what is the centre made? Of what are the arms formed? What is the form of the bolts which attach the floats to the arms? How are the arms attached to the centres?

98.

Why have some paddle wheels one or more cast-iron floats in each wheel? With what engines are these most required? At what part of the circumference are they placed?

99.

Why are paddle wheel floats sometimes made of different breadths in the same wheel? With what description of engine is this most needed? Where are the broad floats placed, and where are the narrow floats placed in the circumference of the wheel?

100.

What difference is there between a radial paddle wheel and one with feathering floats? What is the object of feathering floats? Are all the eccentric rods attached in the same way, and are they all of the same form?

101.

Whereabout is the centre of the eccentric of a paddle wheel with feathering floats placed? In that case are the feathering levers on the striking face or on the back of the float? When the paddle shaft has an outer bearing, how is the eccentric made?

102.

Of what materials are the working surfaces of a paddle wheel with feathering floats? Are they all lubricated? With what?

103.

What is a "Disconnecting Paddle Engine"? At what place is the disconnecting effected? How is it accomplished? In which of the cranks of a disconnecting engine are the crank pins fixed?

104.

Whether is link motion valve gear or the loose eccentric generally used for disconnecting paddle engines? For what steamers are disconnecting paddle engines frequently employed?

105.

What are expansion joints? Where are they necessary? What attention do they require? Of what should the working surfaces be made?

106.

What omission in the construction of expansion joints may lead to a serious accident when steam is first applied? How is this prevented in the construction of a steam trunion pipe for an oscillating engine?

107.

Describe an oil cup with a syphon worsted. How is the worsted arranged? How is it cleaned? How far down the tube does it extend?

108.

Describe a thrust bearing; which of the surfaces wears? Why are there sometimes a number of oil tubes for one thrust bearing?

109.

What parts of a screw shaft are generally covered with brass? Why is this necessary? About what thickness is the brass?

110.

What is the stern tube or screw shaft pipe? Why is a pipe of such a length required? Of what is it made? How is it fixed at each end?

111.

What is a lignum vitæ bearing? How is the wood fitted? Where is such a bearing generally used?

112.

How is a screw propeller fixed on the shaft? What means are used to prevent its getting loose at sea?

113.

Where are sluice valves placed? What large sluice valve is there in almost all screw steamers? From what position should this valve be worked? Why so? What attention should it receive?

114.

With a condensing engine; what valves or cocks are on the skin of the ship in the engine-room and in the stokehole?

115.

What are the necessary fittings of a marine boiler?

116.

With a surface condensing engine what cocks or valves are open some time before the engine is started so as to be ready for starting whenever the order is given?

117.

What is a steam jacket? What cocks are on it? In what engines are jackets most generally used? Do they require to be felted?

118.

What parts of an engine or its fittings should be felted or otherwise protected from radiation?

119.

What are the small cylinders sometimes fitted on the slide valve casing cover of vertical engines? Explain their action. To what are they connected by a pipe? Why so?

120.

Name the principal pipes in connection with the engines and boilers of a steamer, and state to what the ends of these pipes are connected.

121.

Through what cocks or valves, pipes and chambers does the water pass on its way from the sea inlet rose plate to the water space of the boiler, with a jet condenser?

122.

Through what cocks or valves, pipes and chambers does the circulating water of a surface condenser pass?

123.

Through what cocks or valves, pipes and chambers does the steam pass from the boiler until it is in the form of water in the hot well?

124.

Name the pieces of the engine through which the pressure of the steam is transmitted from the piston to the screw propeller. Name them in the order in which they act.

125.

What is an air vessel? How does it act? At what parts of an engine or of its fittings are air vessels generally applied?

126.

What is the construction of a mud box? Where should mud boxes be placed? Why are they necessary? How should the space be divided by the rose plate, and why?

127.

What is a trunk engine? When used in a horizontal engine for a right-hand screw propeller at which side of the vessel should the cylinders be placed? Why so?

128.

What is an oscillating engine? For what steamers are oscillating engines generally adopted? Why? How is the steam conveyed to and from the slide valve casing?

129.

Of what parts does the valve motion gear of an oscillating engine consist?

130.

For what have geared engines sometimes been used? Of what were the cogs of the large wheel made?

131.

At what part of a screw steamer is the pressure that propels it applied to the hull?

132.

At what part of a paddle steamer is the pressure that propels it applied to the hull?

133.

About how much fuel per indicated horse power per hour is required by modern steam engines, common, compound and triple expansion?

134.

What is the explanation of the economy of the surface condenser?

135.

What is the construction of a surface condenser? Of what are its tubes made? How are they fixed? How are they kept tight? What is done with a split tube?

136.

Where do surface condensers foul? How are they cleaned?

137.

What non-conducting substances are employed to prevent radiation, and how are they applied?

138.

In the construction of smoke-box doors and of dry uptakes, what provision is made to lessen the amount of radiation?

139.

How can the formation of black smoke be prevented? Describe smoke preventing apparatus.

140.

What is meant by "circulation" in a boiler, and what are the results of defective circulation?

141.

What means are sometimes adopted to improve the circulation in a boiler?

142.

By what arrangement is the circulation promoted in a "hay-stack" boiler?

143.

Describe a ship's side air-pump discharge valve, in what respects does it sometimes differ from a common stop valve, and what attention does it require?

144.

What is the construction of a feed escape valve, to what is its discharge connected, and how is its loading regulated?

145.

When there is no feed escape valve, what is the arrangement of the feed valves or cocks?

146.

What is the measure of a horse-power? How is indicated horse power ascertained?

147.

Has "nominal horse power" a fixed meaning? What is the use of this expression? What is generally taken as the measure of one horse power nominal?

148.

What is "back pressure" in a cylinder? About how much is it in each of the cylinders in your last steamer? Is excessive cushioning ever a trouble under certain conditions in modern engines? Say when and why and in which cylinder this occurs.

149.

What is meant by "speed of piston"? About how much is the speed of piston in modern marine engines?

150.

What is "atmospheric pressure"? What is its average amount? What instrument tells this amount?

151.

What is "gross pressure" or "absolute pressure"? What pressure is it that is shown by the steam gauge?

152.

What is meant by "cutting off" steam? How is it done? What part of the valve regulates the cut off?

153.

What is a piston slide valve? Describe its construction. Why are such frequently employed in place of the common slide valve? What is a great drawback to the use of these valves?

154.

What fixes the time of closing the exhaust? After the exhaust is closed and before the port opens for steam, what becomes of the steam that is in the cylinder?

155.

What is the "lead" of the valve? What is its object? About what amount is it?

156.

What is the "cover" or "lap" of the valve? What is its object? About what proportion of the stroke of the valve is it made?

157.

What is the "exhaust cover" of a slide valve? What is its effect upon cushioning and upon exhaust?

158.

What is "minus cover" or "minus lap" on the exhaust? What is its effect upon the exhaust and upon cushioning?

159.

What is "cushioning" or "compression" in a steam cylinder? How is it affected by the amount of cover or of minus cover there may be upon the exhaust? How is it affected by the exhaust pressure?

160.

What is "mean effective pressure"? How is its amount ascertained?

161.

What is a dial vacuum gauge? What is its construction? For what is it used? About what amount should it show when the engine is working all right? What effect has the variations it indicates on the performance of the engine?

162.

Does the vacuum gauge enable you to tell what pressure there is in the condenser, or must you have recourse also to the barometer to arrive at that? How would you ascertain the actual amount of back pressure there is in the condenser?

163

What is a barometer? What is its construction? Is a barometer sometimes used instead of a vacuum gauge? In what respect does the weather barometer differ from the vacuum gauge barometer?

164.

The common vacuum gauge and the common steam gauge, in which of them are the graduations marked from atmospheric pressure? Does either of them tell what is the true actual pressure in the boiler or in the condenser?

165.

Do steam and vacuum gauges vary with the variations of the weather barometer? When the weather barometer varies from 29 to 31, how much will the vacuum gauge vary, and how will that affect the working of the engine? Why so?

166.

Vacuum is generally stated as so many inches. What is meant by, say, 20 inches vacuum? What does that tell us about the absolute pressure of the vapour then in the condenser?

167.

From what depth will a pump draw water? Is there any limit? Why?

168.

What is vacuum? Can vacuum move a piston? When the temperature of the water in the condenser is 212°, what is the greatest degree of vacuum there can then be in the condenser?

169.

What is a thermometer, its construction? What is the property of matter that is the principle of its construction? What temperatures are regularly noted by careful engineers?

170.

What is the temperature of (1) melting ice, (2) of boiling water, (3) of steam about 60 lbs. pressure by the steam gauge, (4) of steam about 100 lbs, and (5) of strain about 150 lbs, also (6) of smoke in the funnel, and (7) of water in the hot well?

171.

What is meant by the "conduction" of heat? Give examples of it in the boiler and in the engine.

172.

What is meant by the "convection" of heat? Give examples of it in the boiler and in the engine.

173.

What is meant by "radiation" of heat? Give examples of it in the boiler and in the engine.

174.

Which is convection, which is radiation, and which is conduction in the following cases: (1) Heat from the glowing fuel to the furnace crown. (2) Heat passing from one side of the furnace crown plate to the other. (3) Heat passing from the steam pipes in the engine-room. (4) The heat of evaporation?

175.

What are the effective heating surfaces of a marine boiler? What is an objection to vertical heating surfaces?

176.

What parts of a marine engine are exposed to danger when the temperature is below freezing point?

177.

What precautions are necessary in cold climates when the temperature is below freezing point?

178.

State as many ways as you can by which a boiler might not get its full feed; that is, a boiler, or one of a set of boilers, get short of water, although the feed valve is open its proper amount; to what causes might this be due?

179.

Of what are furnace bars generally made About what thickness are they at top? About what space is between them? Whether are the bars put further apart for Newcastle coal or for Welsh coal?

180.

Which burns faster, Newcastle coal or Welsh coal? Which is the flaming coal? Which makes most smoke?

181.

About how many tons of steam coal will be burnt per day in our furnaces, each 3′ 0″ wide, and of about the usual length? On what grounds do you say so?

182.

About how many tons of steam coal will be burnt per day with good compound engines to drive an ordinary steamer of 40 ft. beam 10 knots an hour by steam alone? On what grounds do you say so? What percentage more coal would be required to propel the same steamer one knot faster?

183.

About how many tons of steam coal will be burnt per day with a good compound engine, surface condensers, the low pressure cylinder 70 inches diameter, doing average work? On what grounds do you say so?

184.

A pair of inverted cylinder direct acting engines, there is a liner half an inch thick between the ahead eccentric rod and the eccentric strap, in overhauling the engine this piece is lost and forgotten; what difference will its omission make in the working of the engine, on the admission, on the cut off, and on the exhaust of the steam? Which will take place earlier, and which later, distinguishing between the up stroke and the down stroke?

185.

A pair of inverted cylinder direct acting engines driving a right-hand screw; on which of the crosshead guide bars is the pressure greatest in the up stroke, and on which in the down stroke?

186.

A screw propeller is getting loose, it has a little play on the shaft, sideways on the key or feather; how will this show in the engine-room?

187.

How would you prove whether the centre line of the trunions of an oscillating cylinder be fair with the centre line of the main shaft?

188.

How can the fairness of a line of screw shafting be tested without lifting the shafts?

APPENDIX B.

TESTIMONIAL.

I hereby certify that has served with me in the engine-room of as principal serang or tindal for a period of , during which time he has discharged his duties to my entire satisfaction.

I consider that he fully understands the working of an engine, and has sufficient tact, presence of mind, and energy to look after and manage the working of the engines of a river steamer having engines not exceeding 80 *nominal horse-power.*

Date (*Signed.*)

No. and description of Certificate.

ANY Engineer giving a testimonial in this form should be very careful in doing so, as the document may materially influence the applicant's elligibility as a candidate.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

ENGINEER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To _____

Whereas *it has been reported to the Lieutenant-Governor of Bengal that you have been found dul qualified to fulfil the duties of Engineer of an Inland Steam-Vessel, I do hereby, in pursuance of Act VI of* 1884 *grant you this CERTIFICATE OF COMPETENCY.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

This _____ 18——.

No. of Certificate of Competency

*Bearer*_____

*Date and Place of Birth*_____

*No. of Register Ticket*_____

*Signature*_____

Any ENGINEER who fails to deliver up a Certificate which has been cancelled or suspended, is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

Issued at Calcutta on the _____ *day of* _____ 18____.

Registered,

Port Officer of Calcutta.

By the Honourable the Lieutenant-Governor of Bengal.

Government of Bengal.

Certificate of Competency

AS

ENGINE-DRIVER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To _____

Whereas *it has been reported to the Lieutenant-Governor of Bengal that you have been found duly qualified fulfil the duties of Engine-Driver on an Inland Steam-Vessel having engines of under 80 nominal horse-power, I do hereby, in pursance of Act VI of 1884, grant you this CERTIFICATE OF COMPETENCY as Engine-Driver.*

Given *under my* Hand and Seal

By order of the Government of Bengal,

This _____ *day of* _____ 18__.

Under-Secy. to the Govt. of Benga

No. of Certificate

Bearer _____ *son of* _____ *by caste* _____

Date and Place of Birth showing Village, Thana and District* _____

Residence showing Village, Thana and District _____

Height _____

Personal description, stating particularly any permanent marks or scars _____

No. of Register Ticket _____

Signature _____

Issued at Calcutta on the _____ *day of* _____ 18____.

Any Engine-Driver who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

Registered,

Port Officer of Calcutta.

* If not known exactly must be stated on the best information or evidence.

APPENDIX TO

The Calcutta Gazette

WEDNESDAY, FEBRUARY 19, 1890.

[Third Publication.]

PUBLIC WORKS DEPARTMENT,—MARINE.

NOTIFICATION.

No. 23 Marine, dated Calcutta, the 30th January 1890.

UNDER the powers conferred upon him by section 36 of the Indian Steam-ships Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to Engineers of sea-going steam-ships.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates of competency granted to persons who pass requisite examinations.

1. Certificates of competency will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose Examiners have been appointed, and arrangements have been made for holding the examinations periodically at the Port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint

Examinations continued till all the candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the candidates who have then presented themselves and whose names appear upon the Port Officer's list on the day of examination are examined.

Application how to be made.

3. The application for examination is to be made on Form Exn. 3, which must be filled up at the Port Office. The Form Exn. 3 properly filled in, together with the Candidate's Indentures of Apprenticeship, testimonials, and discharges, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials required.

4. Applicants will be required to produce, in addition to the usual Forms of Discharge, satisfactory testimonials as to sobriety, experience, ability, and general good conduct for at least the 12 months immediately preceding the date of application to be examined, and without producing them no person will be examined. If the service has been on shore, the testimonial must be signed by an Employer; if at sea, by the Master and Chief Engineer.

5. In cases where a testimonial from the Chief Engineer, or from the Master, is for any sufficient reason not obtainable, one may be submitted from the Superintending Engineer in place of that of the Chief Engineer, and one from the Managing Owner or Secretary or Chairman of a large Company in place of that of the Master, but in every such instance the testimonial must declare that the facts stated are in accordance with the reports made by the Chief Engineer or the Master, as the case may be, or else that the facts are within the writer's personal knowledge.

6. As such testimonials may have to be verified before the Candidate can be examined, it is desirable that they should be handed in, together with the Form Exn. 3, as early as possible.

Testimonials of Foreigners.

7. The testimonials of servitude of Foreigners and of British Seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits; and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificate as to age.

8. Should any doubt exist as to the age of a Candidate, he will be required to produce a Certificate of Birth or Baptism.

Foreigners to know English.

9. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel.

Verification of services, &c., by Articles.

10. Services which cannot be verified by proper entries in the Articles of the Ships in which the Candidates have served cannot be counted.

Service on a lake or river.

11. In addition to the required workshop time, service on a lake or river, in a steamer in which the aggregate piston area of the propelling engines proper amounts to at least 2,000 (two thousand) circular inches will be accepted towards qualifying a candidate to be examined for a certificate of competency as follows:—

Two months of river or lake service, in a capacity not lower than that of Third Engineer, may be deemed equivalent to one month of sea service, provided that,

For a Second Class Certificate, not less than three months of the qualifying service must be actual sea service, and that,

For a First Class Certificate, at least six months of the qualifying service must have been at sea in a grade not below that of Third Engineer, where an engineer of a lower grade is carried. During the last 18 months of this service the candidate must have been in possession of a Second Class Engineer's Certificate of competency.

Assistant Engineer.

12. Service entered upon a ship's Articles as having been performed in the capacity of Assistant Engineer must be supported by proof of the Candidate having acted as Second, Third, or Fourth Engineer, as the case may be.

Service in home or coasting trade.

13 The service required by the Regulations to qualify a candidate for examination is to be regarded as referring to service in the Foreign Trade only. Service in the Home or Coasting Trade must amount to at least half as much again as that required by the Regulations to make up for the time spent in Port, *e g.*, for every twelve months' service under the Regulations, eighteen months' service in the Home or Coasting Trade will be required. In all cases the length of service is deemed to commence on the date of signing of the articles of agreement, and to end on the date of discharge.

Service as Engineer only accepted as qualifying service.

14. Service in the engine-room (afterwards referred to) for qualifying a candidate to be examined for a Second-class Engineer's Certificate must be only in those capacities which afford opportunities of obtaining practical experience as an engineer; and service in the capacity of fireman, stoker, donkeyman, greaser, winchman, labourer, engineer's steward, or any other capacity than that of engineer taking watch on engines and boilers for propelling will not be accepted

Service as Third and Fourth Engineer.

15. Service as Third and Fourth Engineer in Foreign-going steamers, where more than three or four engineers, as the case may be, are carried, their names being all entered on the Articles in their respective ratings, may be accepted equally with service as Second Engineer to qualify a Candidate for examination for a First-class Engineer's Certificate, provided he has, during the whole of such service, been in possession of a Second-class Engineer's Certificate (Imperial, or under Order in Council), and provided also that he was regularly in charge of a watch. In the case of Fourth Engineers, however, eighteen months of such service must be proved for every twelve months required by the Regulations.

16. Service in a capacity below that of Fourth Engineer cannot be accepted as qualifying for any class of certificate unless the testimonials of the candidate explicitly certify that during such service he has been taking regular watch in the engine-room, and that the Chief Engineer or Superintending Engineer considers him properly qualified by that experience to act as Chief Engineer of a Foreign-going steamer of 99 horse-power nominal. *In any case the applicant must prove that he has had the responsible charge of the engines or boilers on regular watch for at least twelve months of sea service, of which for not less than six months he must have been in charge of the propelling engines and rated on the articles not lower than Fourth Engineer.* Service below the grade of Fourth Engineer.

17. Having "responsible charge" will be understood to imply, in regard to the engines, that the applicant, for the time specified, was, on regular watch, the person responsible for carrying out the orders of the engine-room telegraph, and, in regard to the boilers, that he was, similarly for the period specified, the person responsible for regulating the feeds.

18. When the workshop service has been performed in a place *where steam-engines are not made*, and the class of work done is similar to that required in engine-making, the service may be accepted with an additional year in the engine-room; that is, three years' workshop service and two years in the engine-room, of which one year must have been at sea. The approval of the Government must be obtained in every such case before the authority to receive a certificate is issued by the Examiners. Workshop service.

19. When the workshop service has been performed in a place *where engines are made*, and the department in which the applicant has been principally engaged is not "*fitting*" or "*erecting*," if the nature of the service be such as is useful training for an Engineer, the Government may, on proper representation of the circumstances, see fit to accept the service as qualifying along with subsequent experience, but in every such case the applicant must prove additional engine-room service as required above. The approval of the Government must likewise be obtained.

20. If a candidate has served in the Engine Room with a Second class Certificate in the capacity of a Second Engineer in Foreign-going Steam-Ships under 100 horse-power, or in Home-Trade Passenger Steam-Ships, which are not required by law to carry a certificated Second Engineer, his service may be accepted without reference to the vessel's horse-power, provided he has been on the ship's articles as Second Engineer, and produces certificates of discharge as Second Engineer, for the required period. Service as Second Engineer where certificate not required

21. The Government may see fit to allow an applicant who, in consequence of service abroad, has been unable to obtain a Second-class Certificate, to be examined for a First-class Certificate, although he has not obtained a Certificate of the lower grade, provided he is able to satisfy them as to the satisfactory character of his services. First-class certificates without second.

22. In such cases (para. 21) or in cases where the candidate is already in possession of a Certificate of Service, should he fail to pass the examination for the higher grade, but passes the examination for the lower grade, he may receive a Certificate accordingly, but no part of the fee will be returned. Unsuccessful candidates may in certain cases receive certificates for inferior grade.

23. A candidate who under the above regulation (para. 21) has been permitted to be examined for a First-class Certificate without first obtaining a Second-class Certificate of Competency, and who fails in his examination in practical knowledge, may not be re-examined for a Certificate of the higher grade until he has served 12 months as Second Engineer with a Second-class Engineer's certificate of competency as required by the Regulations. Consequence of failure in such cases.

24. If the candidate fails altogether, *i.e.*, both in the examination for the lower as well as for the higher grade of Certificate (para. 21), he may be re-examined for a *Second-class Certificate only*, subject to the usual regulations relating to failure.

If after passing examination services are found to have been insufficient.

25. If after a Candidate has passed his Examination it is discovered on further investigation, *e.g.*, by verification on the part of the Port Officer, that his services are insufficient to entitle him to receive a Certificate of the grade for which he has passed, it will not be granted to him; but if the Government are satisfied that the error in the calculation of his services did not occur through any fault or wilful misrepresentation on his part, the Certificate may be issued to him, or he may be allowed to go up for re-examination without payment of further fee, when he has performed the amount of service in which he was deficient as the Government may direct.

Certificate of lower grade may be granted on certain conditions.

26. If, in such a case, the applicant's services are sufficient to entitle him to receive a Certificate of a lower grade, provided as aforesaid he has not wilfully misrepresented the amount of his services, an Inferior Certificate may be granted to him, and the difference between the fee paid by him for the Superior Certificate and the fee payable for the Inferior Certificate may be placed to his credit.

May have to be re-examined for certificate of higher grade.

27. In such a case when the applicant has 'by further service made up the time in which he was found to be short,' he may be required, before he can receive the higher certificate, to be re-examined in all the subjects.

Qualifications for Certificates of Competency.

Qualification of candidate for Second-class Engineer's Certificate.

28. SECOND-CLASS ENGINEER.—A candidate for a Second-class Engineer's certificate must be not less than 21 years of age;

(*a*) He must have served an apprenticeship to an Engineer for three years in England or five in India at least, and prove that during the period of his apprenticeship he has been employed on the making and repairing of engines:—Or if he has not served an apprenticeship, he must prove that for not less than three years in England or five in India he has been employed as a journeyman mechanic in some factory or workshop* on the making or repairing of engines.† In either case he must also have served one year at sea in the Engine Room as an Engineer on regular Watch in the Foreign, Home or Coasting Trade‡; or

(*b*) He must have served at least four years at sea in the Engine Room as an Engineer on regular Watch in the Foreign, Home or Coasting Trade.

(*c*) He must be able to give a description of boilers, and the methods of staying them, together with the use and management of the different valves, cocks, pipes, and connections.

(*d*) He must understand how to correct defects from accident, decay, &c., and the means of repairing such defects.

(*e*) He must understand the use of the barometer, thermometer, and salinometer, and the principles on which they are constructed.

(*f*) He must state the causes, effects, and usual remedies for incrustation and corrosion.

(*g*) He must be able to state how a temporary or permanent repair could be effected in case of derangement of a part of the machinery, or total break-down.

(*h*) He must write a legible hand, and understand the first five rules of arithmetic, and decimals, and their application to questions about consumption of stores, and full capacities of tanks and bunkers, the duty of pumps, and the direct strains in engines and boilers.

(*i*) He must be able to pass a creditable examination as to the various constructions of paddle and screw engines in general use; as to the details of the different working parts, external and internal, and the use of each part.

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* No period of service in a drawing office can be allowed to count for more than six months workshop time.

† These may be either land or marine engines.

‡ *See* paragraph 13 as to service in Home or Coasting Trade.

29. FIRST-CLASS ENGINEER.—A candidate for a First-class Engineer's Certificate must be not less than 22 years of age. Qualification of candidate for First-class Engineer's certificate.

30. In addition to the qualification required for a Second-class Engineer—

(*a*) He must either possess, or be entitled to, a First-class Engineer's certificate of service; or, in the event of his not being so possessed or entitled, he must have served for one year at sea as Second Engineer with a Second-class Engineer's Certificate of Competency, or for two years at sea as Second Engineer with a Second-class Engineer's Certificate of Service: or having served one year at sea as Second Engineer with a Second-class Engineer's certificate of Service, he must show, in addition, at least six months' service as Chief Engineer in a vessel required by law to carry at least one Engineer holding a certificate. (*See also paragraph* 15 *as regards service as Third and Fourth Engineer.*)

The Examiner should therefore be satisfied that an applicant for a First-class Engineer's Certificate has not only been *in possession* of a Second-class Certificate for the periods above stated, but that he has actually *served* for such periods in the Engine Room at sea with a Second-class Certificate in the capacities referred to, and that his name has been entered in the articles of agreement accordingly. (*See also para.* 21.)

(*b*) He will be required to make an intelligible hand sketch, or a working drawing of some one or more of the principal parts of a steam-engine; and to mark in, without a copy, all the necessary dimensions in figures, so that the sketch or drawing could be worked from.*

(*c*) He must also be able to take off and calculate indicator diagrams.

(*d*) He must be able to calculate safety-valve pressures and the strength of the boiler shell, stays, and riveting.

(*e*) He must be able to state the general proportions borne by the principal parts of the machinery to each other, and to calculate the direct stress, the torsional stress, and the bending stress in round bars, and the direct stress and the bending stress in rectangular bars with given loads.

(*f*) He must be able to explain the method of testing and altering the setting of the slide valves, and to sketch about what difference any alteration in the slide valve will make in the indicator diagram, and also the method of testing the fairness of shafts and of adjusting them.

(*g*) He must be conversant with surface condensation, superheating, and the working of steam expansively.

(*h*) His knowledge of arithmetic must include the mensuration of superficies and solids and the extraction of the square root, and the application of these rules to questions relating to the power, duty, and economy of engines and boilers, and to the stresses in rods, shafts, and levers of the engine.

Service in the Royal Navy.

31. Engineers and Assistant Engineers of the Royal Navy are at liberty to apply for Certificates of Service, and to be examined for Certificates of Competency in the Mercantile Marine; but they must submit their applications in the manner directed by the Lords Commissioners of the Admiralty. Engineers.

32. As regards the grades of Certificates of Competency for which Officers of the Royal Navy can be examined, the rule is—"First-class Assistant," or "Assistant Engineers" of the Royal Navy may be examined for Second-class Engineers' Certificates of "Competency"; "Engineers" of the Royal Navy for First-class Certificates of Competency. Grades.

* *See* Appendix B.

Temporary service in the Royal Navy.

33. Temporary active service as Engineer in the Royal Navy counts in applications for Certificates of Competency in the same way and to the same extent only as in the case of the service of Mercantile Marine Engineers, that is to say, so much of the applicant's time as is spent in active service at sea, or in a ship commissioned for sea service, counts as "sea service;" and so much of the applicant's time as is spent in active service on boardship in harbour, and not commissioned for sea, counts as workshop time—*See* paragraph 28, sub-section (*a*).

Engineer Artificer.

34 Service performed in the capacity of Engineer Artificer may count to qualify a Candidate for examination for a Second-class Engineer's Certificate of Competency in the Mercantile Marine. If the service has been on shore, it will count only as workshop time. If in the Engine Room at sea, the Candidate must prove that during such service he had charge of an Engine Room watch.

Fees.

Fees to be paid by applicants for examination. (Exn. 17.)

35. Candidates for examination, in making their Application on Form Exn. 3, will be required to pay the Examination fees before any step is taken, whether by inquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them, but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be.

36. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

37. If a candidate fails in his examination, *no part of the fee he has paid will be returned to him.*

38. The fees are as follow:—

Second-class Engineer's Certificate ...	Rs.	12
First-class Engineer's Certificate ...	„	24
First-class Engineer's Certificate if candidate is already in possession of a Second-class Certificate of competency granted by the Board of Trade, or by the Government of a British possession under Section 8 of the Merchant Shipping (Colonial) Act, 1869 ...	Rs.	12
Renewal of any certificate	„	5

General Rules as to Examinations.

Candidates not to take books, &c., into examination room.

39. All books necessary for the use of candidates under examination will be provided by the Government, and applicants are not permitted to take into the examination room any book, paper, document, or memoranda of any description whatever.

40. Candidates will be allowed in the time allotted to cancel any part of their work, and when required additional papers will be supplied by the Examiners, but they will not be allowed to work out the problems on a slate or on waste paper. The additional sheets must be attached to, and form part of, the examination papers.

41. Candidates for First-class Certificates have to pass an examination in Rough Working Drawing, which may, at the candidates' option, be either hand sketches clearly dimensioned and complete in the necessary *views* and *sections*, or drawings to a scale. Drawing boards and T squares will be provided by the Government, but the applicants will have to bring with them any drawing instruments they may require.*

* *See* Appendix B.

42. In the event of any candidate being discovered copying from another, or affording any assistance or giving any information to another, or communicating in any way with another during the time of examination, he will be regarded as having failed in his examination, and will be turned back for three months, in the same manner as if he had failed in the practical part of the examination; and no part of the fees he may have paid for examination will be returned to him. This penalty also applies to any breach of paragraph 34. Punishment for breaking rules.

43. If a candidate leaves the room before answering any question which has been given to him, he cannot afterwards be permitted to answer it, but the Examiners may substitute other data or another question. Leaving examination room.

44. All applicants presenting themselves for examination will be required to give written answers to ten questions selected from Form Exn. 15*a*.,* "Elementary Questions for the first examinations of Engineers for certificates of competency, and of Masters and Mates for certificates in steam." These questions are intended to furnish a record to some extent of the candidate's knowledge at the time of his examination, and also to induce the candidates to pay more attention to their handwriting and spelling. Questions from Form Exn. 15*a*.

45. The Form Exn. 15*b*., on which these answers will be written, contains also some questions as to the experience of the applicant, to be answered by him in writing.

46. Examiners may add to their *viva voce* questions on the practical management of steam-engines and boilers any of those contained in Exn. 15*a*.

47. If at the expiration of the time allowed the candidate has worked out and answered correctly the whole of the questions set to him, and given satisfactory answers in the *viva voce* examination, he will be declared to have passed.

48. If at the expiration of the time allowed he has not worked out the whole of the questions set to him, but if the result of the *viva voce* examination taken in connection with the answers to such of the questions as he has worked out is sufficient to satisfy the Examiners that the applicant is competent to take charge of engines of 100 nominal horse power or upwards, he will be declared to have passed.

49. In other cases he will be declared to have failed.

50. A report of the examination, and the examination papers, will be forwarded to the Port Officer on the Form (Exn. 15). Exn. 15.)

51. If the candidate passes, he will receive the Form Exn. 16, upon which the Government will issue the certificate to the candidate, whose testimonials, &c., will be returned at the same time. Notification of having passed will be given to successful candidates. (Exn. 16.)

Failure.

52. If the applicant fails in practical knowledge, he may not present himself for re-examination until he can produce proofs of THREE MONTHS' further service at sea as Engineer from the date of failure. If he fails in arithmetic or drawing only, he may come up again at any time.

General.

53. Certificates of Competency shall be made and issued by the Government in the forms hereunto annexed.

54. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

55. No application from the holder of a certificate granted by the Government of any other British Possession or by the Board of Trade to be examined for a certificate of the same legal value shall be entertained.

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* *See* Appendix A.

APPENDIX A.

Form **Exn. 15a.**

Elementary Questions for the First Examinations of Engineers for Certificates of Competency and of Master and Mates for certificates in steam.

TO ENGINEER EXAMINERS.

EXAMINERS will require all candidates to fill up a form, Exn. 15*b*., of which a copy is enclosed, and they will forward the same to the Port Officer for transmission to the Government along with the report of the examination.

It is intended to issue questions of a more advanced character for first-class candidates, but in the meantime the questions for both classes of Engineers and also for Masters and Mates passing a Voluntary Examination in steam will be taken from the same book of "Elementary Questions," and candidates for first-class certificates are expected to show their superiority by giving answers more complete than those of the other candidates.

The arithmetical questions for Engineers and the *viva voce* examinations for all candidates will be continued as heretofore, and failure in the elementary questions will be treated as failure in arithmetic.

The numbers of the questions for each examination will be selected by the examiners, and they are not to be communicated to the candidate until his examination commences.

Masters and Mates may cancel questions A, B, and C, but they should fill up the form for questions D, E, F, and G, as evidence of their practical knowledge.

Exn. 15b.

Port . Class for which examined

Date Candidate's name

A. Where and how long did you serve in works at the making or at the repairing of Engines, and in what capacities?

B. How long have you served as fireman or trimmer?

C. How long have you served in the engine-room at sea, and in what capacities?

D. With what descriptions of Engines have you served at sea—Paddle or Screw or both, Jet Condensing, Surface Condensing, or Non-condensing Engines, Compounds, Trunks, Inverted Cylinders, or Horizontal Engines? What size were the engines?

E. With what descriptions of Boilers have you served at sea—Rectangular or Cylindrical, Wet-bottomed or Dry-bottomed, Multitubular, Sectional or Flue Boilers?

F. What Engine defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

G. What Boiler defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

For the questions to be answered on the following pages, *see* the book of Elementary Questions. The questions need not be written; only the answers to them.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

ELEMENTARY QUESTIONS.

1.

What parts of an engine are generally made of wrought-iron?

2.

What parts of an engine are generally made of cast-iron?

3.

For what parts of an engine is steel sometimes used?

4.

What parts of an engine are generally made of brass or gun-metal?

5.

Where is "white metal" sometimes used? On account of what property possessed by it is it adopted? What objection is there to its more general use?

6.

For what parts is Muntz metal sometimes used? Is it malleable? For what properties is it valued?

7.

What difference is there in the composition of cast-iron, of wrought-iron, and of steel?

8.

How can cast-iron, wrought-iron, and steel be distinguished from each other?

9.

What are the different properties of cast-iron, of wrought-iron and of steel?

10.

What is meant by the terms "breaking stress," "proof stress," "safe working stress"?

11.

What is the cohesive strength or breaking stress of good ordinary wrought-iron?

12.

Tempering steel: how is it done, and in what order do the colours come?

13.

What is case-hardening?

14.

Which of the common metals or alloys can be forged, and which of them are brittle or "short"?

15.

What is meant by "welding"? Which of the common metals can be welded?

16.

The expansion of metals by heat: give examples of this in the engine and in the boiler.

17.

In the construction of cylindrical marine boilers, for what parts have the plates to be worked hot? When the material is steel, what precautionary treatment of these plates is afterwards necessary?

18.

What is double riveting? In what parts of cylindrical marine boilers is double riveting employed? In which of the shell seams is it most necessary?

19.

What is "caulking," and how are seams prepared for caulking?

20.

Describe the different ways of fastening the ends of the main stays of a boiler. What are the merits of, or objections to, the different plans?

21.

What strain per square inch is allowed on boiler stays?

22.

Describe a riveted stay, and state where such stays are commonly used.

23.

Where are thin plates to be looked for in a boiler as it wears, and how is the thinness to be detected?

24.

How are boiler tubes fixed? What are "stay tubes," and how are they secured?

25.

Where is it generally that boiler tubes leak? How is this defect raired? What are the causes of this leaking?

26.

What are the causes of cracked tube plates? Where are the cracks situated? How are they repaired?

27.

What is the difference between a "dry uptake" and a "wet uptake"? Which requires most ropair? Why? Where have you seen a wet uptake?

28.

What is a superheater? What is its construction? What valves are on it? There is sometimes a gauge glass on it; what is that for?

29.

What parts of a marine tubular boiler are first injured by shortness of water?

30.

Where are angle irons sometimes used in the construction of a boiler, and where are flanged plates used?

31.

Priming: to what causes is it attributed? What means are applied to prevent it? What evils may be produced by it?

32.

Funnel draught: what makes it? What checks it?

33.

Flame is sometimes seen at the top of the funnel: what causes this appearance? Is it beneficial or is it detrimental? Why so?

34.

A blast pipe: what is its construction? Where is it placed? For what is it used?

35.

How many bottom blow-off cocks are generally fitted to each boiler, and why are they so fitted?

36.

Blow-off cocks are sometimes fitted with a spanner guard: for what purpose is this? Describe how the guard is formed?

37.

Test cocks or water-gauge cocks: where are they placed? At what heights? Must the cocks themselves be at those heights? What provision is made for cleaning these cocks should they ever become choked? When there are no test cocks how is the height of the water ascertained?

38.

What is a dead-weight safety valve? Of what are the rubbing surfaces formed? How is a lock-up valve arranged to admit of lifting it or of turning it round, and to prevent adding to the weight?

39.

About what area of safety valve is now required by the Board of Trade? What area was formerly required, and on what ground has that been altered? What is the effect of suddenly opening a safety valve when steam is up? To about what extent do safety valves rise when blowing off without being eased by hand?

40.

Spring-loaded safety valves: what advantages have they that are not possessed by dead-weight valves? What are the disadvantages as compared with dead-weight valves?

41.

Of what pieces does a glass water gauge mounting consist? How does it act? Where is it placed? At what height? Is it liable to derangement? How is its working tested?

42.

Glass water gauges have sometimes pipe connections top and bottom: what is the object of this arrangement? Should there be cocks at the extremities of these pipes?

43.

Describe a Bourdon's steam gauge. Some gauges have an inverted syphon pipe below them: what is its use?

44.

Why is a small cock sometimes put on the pipe leading to a steam gauge? Where should it be placed, and what error might be made by omitting to use it?

45.

Do steam gauges indicate the total pressure of the steam, or only a portion of that pressure? What is the pressure measured from?

46.

What is meant by the salting of the boiler? How is this prevented? What is the density of ordinary sea water? How is the density ascertained? What is the difference between the formation of scale and the salting of the boiler? What is the maximum density at which boilers should be worked at sea?

47.

Scum cocks and pipes: how are they arranged? Where are they placed? At what height in the boiler? When are they used? When must they be shut? Neglect of these cocks lead to what dangers?

48.

Scale: of what does it consist? Where is it most objectionable? How is it removed? How is its formation prevented? What evil effects are produced by it?

49.

What is a salinometer? Of what does it consist? How does it act? How is it graduated? Can it be used at any temperature indiscriminately?

50.

What harm may be done through the check valve of one of a set of boilers being defective while under way? How would you work to avoid this harm?

51.

How is the leak from a split tube stopped in a boiler at sea? Describe the operation?

52.

What is the use of dampers? Where are they fitted? When should they be used?

53.

When there are no dampers fitted, what is used instead? What evil to the boiler is sometimes attributed to this? When the heating surfaces are clean does this occur?

54.

Describe the piston of a steam cylinder, with its different rings and their uses? There are generally round pieces let in flush on one side of a piston: what are they? How are these pieces fixed?

55.

Cylinder drain cocks: what is their use? There is sometimes a valve upon each cock: what purpose does it serve?

56.

Cylinder escape valves: of what do they consist? How protected? How regulated? When are they most needed? To what danger do they expose the Engineer? What precaution is sometimes used to obviate this danger?

57.

What is a compound engine? What different kinds are there for screw steamers, in respect to the number and arrangement of their cranks and cylinders? What is a triple expansion engine?

58.

What is link motion? What are some of its advantages? In modern engines for the screw propeller when there is no link motion, what takes its place?

59.

What is a separate expansion valve? Why is it not fitted to all engines? What effect has an expansion valve upon the starting and upon the reversing of the engine?

60.

What arrangement is applied to reduce the friction of a slide valve? To what is the friction due?

61.

Describe a loose eccentric; how does it act? In what engines is the loose eccentric still employed?

62.

What is the travel of the eccentric rod? How is it measured on the eccentric? What is the travel of the slide valve when the link motion is in mid gear, and the engine still moving?

63.

What are "double beat valves"? Why are they not generally used for safety valves? Are they ever used instead of the slide valve? What objections are there to their use?

64

What is a circulating pump? Is it always worked by the main engine? Give an example from your last steamer of the three water temperatures generally noted by careful engineers?

65.

An air valve is sometimes fitted to a circulating reciprocating pump: what purpose does it serve?

66.

What is the difference between a bucket air-pump, a piston air-pump, and a plunger air-pump?

67.

Whether are double-acting air-pumps made with plungers, with pistons, or with buckets?

68.

What is an air-pump trunk? When is it necessary? How is it attached to the bucket?

69.

What class of air-pump requires both foot and delivery valves, and in what other class can either of these valves be in some cases dispensed with?

70.

When under way, when the air-pump bucket is at the top of its stroke, at what height is the water in the condenser?

71.

With a surface condenser and a single acting air-pump, what is the effect of a leaky foot valve, and what is the effect of a leaky bucket when there is also a foot valve?

72.

Air-pump pet cock or valve: where is it placed? How does it act? What is its object? Does it in every case reduce the effective capacity of the pump? Is it equally applicable to double-acting pumps?

73.

At what temperature is the hot well worked? What is the effect of higher temperatures? What is the effect of lower temperatures? What limits the lowness of temperature? Has a very low temperature any disadvantages?

74.

Bilge injection with common condensers: what are the fittings required? When is it used? What precautions are necessary in using it?

75.

When surface condensers are used, what takes the place of the bilge injection? To what is the connection made? How is its valve formed? Why is this necessary?

76.

What are the practical guides to the proper amount of opening of the inlet valve for the circulating pump?

77.

Feed-pump pet cock or valve: where is it placed? What is its use? How does it act? Is it always a necessary fitting?

78.

What are some of the ways of fastening the ends of surface condenser tubes? About what size and about what thickness are condenser tubes? What parts of a surface condenser are made of brass?

79.

What is a blow-through valve or cock? To what is it attached? There is sometimes a valve that, when opened, admits steam from the slide valve casing to the exhaust port; what is its use? To which cylinder is it fitted?

80.

What is a snifting valve? What is its use? Where is it placed? Can it be placed too high? Can it be placed too low? At what height should it be placed? Was there one in your last steamer; if so, where was it? Why are snifting valves generally omitted now?

81.

What connections are generally fitted to the donkey-pump, and to what services can it be applied?

82.

When the engines are stopped with steam up, what are to be shut and what are to be opened?

83.

How is an engine heated up before starting? What precautionary examinations are made before starting?

84.

What is an interceptor or catch-water? Where is it fixed; what is its construction; how does it act; and what attention does it require?

85.

Describe an air-pump bucket, with its valve or valves and its packing? Of what are the valves generally made?

86.

Of what materials are air-pump rods made? Why so?

87.

What is the racing of the engine? When does it occur? What danger attaches to it? What is done to prevent it?

88.

What are marine governors? What is their general construction? How do they act?

89.

What is meant by the "pitch" of a screw propeller? How is it measured?

90.

Explain the difference between a "right hand" and a "left hand" propeller, and state how each of them revolves.

91.

What is the slip of a screw propeller? How is its amount expressed in figures?

92.

Which of the valves about engines and boilers have to be worked by hand, which of them work self-actingly, and which are worked by the motion of the engine?

93.

Why is soda sometimes put into a boiler, and how is it put in when under way? What is the kind of soda used?

94.

Tallow cups for cylinders were sometimes made with two small cocks, or with only one small cock, or with one large hollow plug cock, or with one small cock and a valve; which of these is suitable for a high-pressure cylinder, and which for the cylinder of a condensing engine? Describe how the cup with only one small cock is used? What is now generally used instead of these? How has this change come about?

95.

Does a cylinder escape valve, self-acting, allow all the water to escape; if not, how much is left in the cylinder?

96.

What is a "Steam Lubricator" (sometimes called an Impermeator)? Explain its action? To what part of the engine is it connected? Whether will throwing cold water over it make it work faster or slower? Describe the one used in your last steamer?

97.

A common paddle wheel: of what is the centre made? Of what are the arms formed? What is the form of the bolts which attach the floats to the arms? How are the arms attached to the centres?

98.

Why have some paddle wheels one or more cast-iron floats in each wheel? With what engines are these most required? At what part of the circumference are they placed?

99.

Why are paddle wheel floats sometimes made of different breadths in the same wheel? With what description of engine is this most needed? Where are the broad floats placed, and where are the narrow floats placed in the circumference of the wheel?

100.

What difference is there between a radial paddle wheel and one with feathering floats? What is the object of feathering floats? Are all the eccentric rods attached in the same way, and are they all of the same form?

101.

Whereabout is the centre of the eccentric of a paddle wheel with feathering floats placed? In that case are the feathering levers on the striking face or on the back of the float? When the paddle shaft has an outer bearing, how is the eccentric made?

102.

Of what materials are the working surfaces of a paddle wheel with feathering floats? Are they all lubricated? With what?

103.

What is a "Disconnecting Paddle Engine"? At what place is the disconnecting effected? How is it accomplished? In which of the cranks of a disconnecting engine are the crank pins fixed?

104.

Whether is link motion valve gear or the loose eccentric generally used for disconnecting paddle engines? For what steamers are disconnecting paddle engines frequently employed?

105.

What are expansion joints? Where are they necessary? What attention do they require? Of what should the working surfaces be made?

106.

What omission in the construction of expansion joints may lead to a serious accident when steam is first applied? How is this prevented in the construction of a steam trunion pipe for an oscillating engine?

107.

Describe an oil cup with a syphon worsted? How is the worsted arranged? How is it cleaned? How far down the tube does it extend?

108.

Describe a thrust bearing; which of the surfaces wears? Why are there sometimes a number of oil tubes for one thrust bearing?

109.

What parts of a screw shaft are generally covered with brass? Why is this necessary? About what thickness is the brass?

110.

What is the stern tube or screw shaft pipe? Why is a pipe of such a length required? Of what is it made? How is it fixed at each end?

111.

What is a lignum vitæ bearing? How is the wood fitted? Where is such a bearing generally used?

112.

How is a screw propeller fixed on the shaft? What means are used to prevent its getting loose at sea?

113.

Where are sluice valves placed? What large sluice valve is there in almost all screw steamers? From what position should this valve be worked? Why so? What attention should it receive?

114.

With a condensing engine, what valves or cocks are on the skin of the ship in the engine-room and in the stokehole?

115.

What are the necessary fittings of a marine boiler?

116.

With a surface condensing engine, what cocks or valves are open some time before the engine is started so as to be ready for starting whenever the order is given?

117.

What is a steam jacket? What cocks are on it? In what engines are jackets most generally used? Do they require to be felted?

118.

What parts of an engine or its fittings should be felted or otherwise protected from radiation?

119.

What are the small cylinders sometimes fitted on the slide valve casing cover of vertical engines? Explain their action? To what are they connected by a pipe? Why so?

120.

Name the principal pipes in connection with the engines and boilers of a steamer, and state to what the ends of these pipes are connected?

121.

Through what cocks or valves, pipes and chambers does the water pass on its way from the sea inlet rose plate to the water space of the boiler, with a jet condenser?

122.

Through what cocks or valves, pipes and chambers does the circulating water of a surface condenser pass?

123.

Through what cocks or valves, pipes and chambers does the steam pass from the boiler until it is in the form of water in the hot well?

124.

Name the pieces of the engine through which the pressure of the steam is transmitted from the piston to the screw propeller. Name them in the order in which they act.

125.

What is an air vessel? How does it act? At what parts of an engine or of its fittings are air vessels generally applied?

126.

What is the construction of a mud box? Where should mud boxes be placed? Why are they necessary? How should the space be divided by the rose plate, and why?

127.

What is a trunk engine? When used in a horizontal engine for a right-hand screw propeller, at which side of the vessel should the cylinders be placed? Why so?

128.

What is an oscillating engine? For what steamers are oscillating engines generally adopted? Why? How is the steam conveyed to and from the slide valve casing?

129.

Of what parts does the valve motion gear of an oscillating engine consist?

130.

For what have geared engines sometimes been used? Of what were the cogs of the large wheel made?

131.

At what part of a screw steamer is the pressure that propels it applied to the hull?

132.

At what part of a paddle steamer is the pressure that propels it applied to the hull?

133.

About how much fuel per indicated horse power per hour is required by modern steam engines, common, compound and triple expansion ?

134.

What is the explanation of the economy of the surface condenser ?

135.

What is the construction of a surface condenser ? Of what are its tubes made ? How are they fixed ? How are they kept tight ? What is done with a split tube ?

136.

Where do surface condensers foul ? How are they cleaned ?

137.

What non-conducting substances are employed to prevent radiation, and how are they applied ?

138.

In the construction of smoke-box doors and of dry uptakes, what provision is made to lessen the amount of radiation ?

139.

How can the formation of black smoke be prevented ? Describe smoke preventing apparatus ?

140.

What is meant by "circulation" in a boiler, and what are the results of defective circulation ?

141.

What means are sometimes adopted to improve the circulation in a boiler ?

142.

By what arrangement is the circulation promoted in a "hay-stack" boiler ?

143.

Describe a ship's side air-pump discharge valve ? In what respects does it sometimes differ from a common stop valve, and what attention does it require ?

144.

What is the construction of a feed escape valve, to what is its discharge connected, and how is its loading regulated ?

145.

When there is no feed escape valve, what is the arrangement of the feed valves or cocks ?

146.

What is the measure of a horse power ? How is indicated horse power ascertained ?

147.

Has "nominal horse power" a fixed meaning ? What is the use of this expression ? What is generally taken as the measure of one horse-power nominal ?

148.

What is "back pressure" in a cylinder ? About how much is it in each of the cylinders in your last steamer ? Is excessive cushioning ever a trouble under certain conditions in modern engines ? Say when and why and in which cylinder this occurs ?

149.

What is meant by "speed of piston" ? About how much is the speed of piston in modern marine engines ?

150.

What is "atmospheric pressure" ? What is its average amount ? What instrument tells this amount ?

151.

What is "gross pressure" or "absolute pressure"? What pressure is it that is shown by the steam gauge?

152.

What is meant by "cutting off" steam? How is it done? What part of the valve regulates the cut off?

153.

What is a piston slide valve? Describe its construction? Why are such frequently employed in place of the common slide valve? What is a great drawback to the use of these valves?

154.

What fixes the time of closing the exhaust? After the exhaust is closed and before the port opens for steam, what becomes of the steam that is in the cylinder?

155.

What is the "lead" of the valve? What is its object? About what amount is it?

156.

What is the "cover" or "lap" of the valve? What is its object? About what proportion of the stroke of the valve is it made?

157.

What is the "exhaust cover" of a slide valve? What is its effect upon cushioning and upon exhaust?

158.

What is "minus cover" or "minus lap" on the exhaust? What is its effect upon the exhaust and upon cushioning?

159.

What is "cushioning" or "compression" in a steam cylinder? How is it affected by the amount of cover or of minus cover there may be upon the exhaust? How is it affected by the exhaust pressure?

160.

What is "mean effective pressure"? How is its amount ascertained?

161.

What is a dial vacuum gauge? What is its construction? For what is it used? About what amount should it show when the engine is working all right? What effect has the variations it indicates on the performance of the engine?

162.

Does the vacuum gauge enable you to tell what pressure there is in the condenser, or must you have recourse also to the barometer to arrive at that? How would you ascertain the actual amount of back pressure there is in the condenser?

163.

What is a barometer? What is its construction? Is a barometer sometimes used instead of a vacuum gauge? In what respect does the weather barometer differ from the vacuum gauge barometer?

164.

The common vacuum gauge and the common steam gauge: in which of them are the graduations marked from atmospheric pressure? Does either of them tell what is the true actual pressure in the boiler or in the condenser?

165.

Do steam and vacuum gauges vary with the variations of the weather barometer? When the weather barometer varies from 29 to 31, how much will the vacuum gauge vary, and how will that affect the working of the engine? Why so?

166.

Vacuum is generally stated as so many inches. What is meant by, say, 20 inches vacuum? What does that tell us about the absolute pressure of the vapour then in the condenser?

167.

From what depth will a pump draw water? Is there any limit? Why?

168.

What is vacuum? Can vacuum move a piston? When the temperature of the water in the condenser is 212°, what is the greatest degree of vacuum there can then be in the condenser?

169.

What is a thermometer; its construction? What is the property of matter that is the principle of its construction? What temperatures are regularly noted by careful engineers?

170.

What is the temperature of (1) melting ice, (2) of boiling water, (3) of steam about 60 lbs. pressure by the steam gauge, (4) of steam about 100 lbs., and (5) of strain about 150 lbs.; also (6) of smoke in the funnel, and (7) of water in the hot well?

171.

What is meant by the "conduction" of heat? Give examples of it in the boiler and in the engine.

172.

What is meant by the "convection" of heat? Give examples of it in the boiler and in the engine.

173.

What is meant by "radiation" of heat? Give examples of it in the boiler and in the engine.

174.

Which is convection, which is radiation, and which is conduction in the following cases: (1) Heat from the glowing fuel to the furnace crown. (2) Heat passing from one side of the furnace crown plate to the other. (3) Heat passing from the steam pipes in the engine-room. (4) The heat of evaporation?

175.

What are the effective heating surfaces of a marine boiler? What is an objection to vertical heating surfaces?

176.

What parts of a marine engine are exposed to danger when the temperature is below freezing point?

177.

What precautions are necessary in cold climates when the temperature is below freezing point?

178.

State as many ways as you can by which a boiler might not get its full feed; that is, a boiler, or one of a set of boilers, gets short of water although the feed valve is open its proper amount; to what causes might this be due?

179.

Of what are furnace bars generally made? About what thickness are they at top? About what space is between them? Whether are the bars put further apart for Newcastle coal or for Welsh coal?

180.

Which burns faster, Newcastle coal or Welsh coal? Which is the flaming coal? Which makes most smoke?

181.

About how many tons of steam coal will be burnt per day in four furnaces each 8′ 0″ wide, and of about the usual length? On what grounds do you say so?

182.

About how many tons of steam coal will be burnt per day with good compound engines to drive an ordinary steamer of 40 ft. beam 10 knots an hour by steam alone? On what grounds do you say so? What percentage more coal would be required to propel the same steamer one knot faster?

183.

About how many tons of steam coal will be burnt per day with a good compound engine, surface condensers, the low pressure cylinder 70 inches diameter, doing average work? On what grounds do you say so?

184.

A pair of inverted cylinder direct acting engines, there is a liner half an inch thick between the ahead eccentric rod and the eccentric strap, in overhauling the engine this piece is lost and forgotten; what difference will its omission make in the working of the engine, on the admission, on the cut off, and on the exhaust of the steam? Which will take place earlier, and which later distinguishing between the up stroke and the down stroke?

185.

A pair of inverted cylinder direct acting engines driving a right-hand screw; on which of the crosshead guide bars is the pressure greatest in the up stroke, and on which in the down stroke?

186.

A screw propeller is getting loose; it has a little play on the shaft, sideways on the key or feather; how will this show in the engine-room?

187.

How would you prove whether the centre line of the trunions of an oscillating cylinder be fair with the centre line of the main shaft?

188.

How can the fairness of a line of screw shafting be tested without lifting the shafts?

APPENDIX B.

Form Exn. 17.

Examination in Rough Working Drawing for a First-Class Engineer's Certificate of Competency.

1. The regulations in regard to the qualifications of a candidate for a first-class Engineer's Certificate of Competency specify that—

"He must be able to make rough working drawings of the different parts of the engines and boilers."

"He must be able to state the general proportions borne by the principal parts of the machinery to each other."

2. In accordance with these clauses, a candidate for a first-class certificate is required to make a rough working drawing of the parts specified on the other side of this leaf. A mechanic who has been some years in charge of marine engines and boilers ought by this time to have familiarly in his mind the general construction of at least one set of engines and boilers, say that set he was

last with. Fine drawing is not expected, and in the proportions of the parts a wide margin will be allowed; absurd dimensions will be failure in practical knowledge.

3. The drawing must, however, be practically a working drawing, giving a sufficient number of views to show the parts fully—sections, plans, or elevations, just as the candidate would require to be supplied to him if he had to make the parts to the design of another person.

4. A clear hand sketch showing the construction, completely and fully dimensioned, will be accepted if the candidate prefers this alternative.

5. A portion only of the parts specified may be accepted in place of the whole, if that portion is sufficient to show that the candidate has a good practical idea of the construction of the parts, and a fair notion of their general proportions or dimensions.

6. Candidates are hereby cautioned not to put on paper what they have not fully considered, and deliberately intend to be understood, as their statement of what they know about the construction of any part required.

7. The statements given in by a candidate may be in themselves, apparently, of little importance, but as sample material from which the state of the candidate's knowledge of engines and boilers is to be inferred, every detail which is glaringly inconsistent with a sound knowledge of the use of the part, or in which an essential consideration has evidently been overlooked, is an important element in the description which the candidate is giving of his own qualifications.

8. The candidate is advised not to begin more than he can clearly finish in the time allowed. An important object in this part of the examination is to ascertain whether the candidate can be trusted to mark all necessary dimensions upon a sketch or a drawing. The test of this is, practically, the making of the part from the sketch without having to supply additional dimensions, and without measuring the drawing. To prove this ability the candidate must fully dimension the parts shown in his sketch or drawing, notwithstanding that the parts may be correctly drawn to scale. A drawing is fully dimensioned when no part of it is left to the option of the party who is to work to the drawing.

9. To prevent misunderstanding, however, when the candidate has been led into showing more of the details than he has time fully to finish, he should name, in the statement on the other side, the particular parts which he has fully dimensioned.

10. All dimensions should have lines and darts, to indicate distinctly the points between which the dimensions are given.

11. Beware of writing cross dimensions upon centre lines, or upon longitudinal dimension lines. This is not an order but a recommendation.

12. The candidate is not expected to design anything; he has merely to sketch or draw a something with which he is expected to be already familiar.

13. Pencil in nothing after half-past 3; all the dimensions, the figures, and the darts must be inked in; employ the remaining time in examining the drawing and in inking in any figures which may have been before overlooked, and in checking the dimensions.

14. Make sure that you will have sufficient room on the drawing sheet to show all the necessary views. You can have another sheet or drawing paper if necessary. All the paper used must be forwarded with the drawing.

15. Fill in and sign the following statement.

(Specimen.)

Form **Exn. 17a.**

SUBJECT FOR EXAMINATION IN ROUGH WORKING DRAWING.

(Read the foregoing general instructions.)

A common slide valve with its spindle. Show also an outline section of the ports at the cylinder face. Show the provision for connecting the slide valve to the spindle.

The candidate is requested to fill up the following, and to attach this paper to his drawing.

Statement by the Candidate.

The accompanying drawing, made by me this day, without referring to any document, and without the assistance of any person, is intended by me to be sufficient for the new construction of the parts above described to fit the places of similar parts which are to be removed. The construction is similar to what I have been with in the_____steamer_____, but the dimensions may be different.

The diameter of the cylinder is_____

The stroke of the piston is_____

The stroke of the valve is_____

The cover at top end on steam side is_____

The cover at bottom end on steam side is _____

The lead at top is intended to be_____

The lead at bottom is intended to be_____

The inside cover is +_____or_____.

The thickness of the face of valve is_____

The thickness of the body of valve is_____

The greatest opening for steam will be_____

That gives an area equal to one_____

The opening for exhaust when the crank is on the top centre is_____

That gives an area equal to_____th of piston.

The length of the connecting rod is_____

The valve will cut off steam on the down stroke at_____

The valve will cut off steam on the up. stroke at_____

The Candidate may omit this part if he chooses.

The parts fully dimensioned, in ink, are_____

Dated at_____

this_____ day of_____18

_____ Applicant.

BENGAL.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act*, 1869.

Colonial Certificate of Competency

AS

FIRST CLASS ENGINEER.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of FIRST CLASS ENGINEER in the Merchant Service, I do hereby, in pursuance of Act VII of* 1884, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

this _____ *day of* _____ 18——.

Under-Secy. to the Govt. of Bengal.

BENGAL.

No. of Certificate [redacted]

*Address of Owner*_____

*Date and Place of Birth*_____

*Signature*_____

*This Certificate is given upon an ORDINARY EXAMINATION passed at*_____ *on the*_____ *day of*_____ 18 .

Any ENGINEER who fails to deliver up a Certificate which has been cancelled or suspended, is liable to a penalty not exceeding Rs. 500. *This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act* 25 *and* 26 *Vic., cap.* 63, *sec.* 23, *to cancel or suspend Certificates.*

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

*Issued at the Port of Calcutta on the*_____ *day of* _____ 18 .

Registered,

Port Officer of Calcutta.

Government of Bengal.

BENGAL.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, issued under section 8 of the Merchant Shipping (Colonial) Act, 1869.

Colonial Certificate of Competency

AS

SECOND CLASS ENGINEER.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of SECOND CLASS ENGINEER in the Merchant Service, I do hereby, in pursuance of Act VII of* 1884, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

*this*_____ *day of*_____ 18__.

Under-Secy. to the Govt. of Bengal

BENGAL.

No. of Certificate [redacted]

Address of Owner———————————————

Date and Place of Birth———————————————

Signature———————————

This Certificate is given upon an ORDINARY EXAMINATION passed at———————*on the*—— ———

day of———————18—.

Any ENGINEER who fails to deliver up a Certificate which has been cancelled or suspended, is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the—— —— ———*day of*—— —— 18—.

Registered.

Port Officer of Calcutta.

NOTIFICATION.

No. 24 Marine, dated Calcutta, the 30th January 1890.

UNDER the powers conferred upon him by section 36 of Act VII of 1884 (the Indian Steam-ships Act), and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to engine-drivers of sea-going steam-ships having engines of under 50 nominal horse-power.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

1. Certificates of competency will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed and arrangements have been made for holding the examinations periodically at the port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint.

2. The application for examination is to be made in Form Exn. 3*a*, which must be filled up at the Port Office. The Exn. 3*a* properly filled in, together with the candidate's testimonials, must be lodged with the Port Officer not later than the day before the day of examination.

3. A candidate for a certificate of competency under these rules must be not less than 22 years of age.

4. He must have served three years as principal serang or tindal in the engine-room of a sea-going steamer under a certificated Engineer.

5. He must have the testimonial shown in Appendix A filled up by the Engineer with whom he has last served, or his other testimonials must contain all the particulars therein required.

6. He must pass a *viva voce* examination before the Board of Examiners as to the working of an engine and the use of its different parts.

7. He must, if required, be able to show his practical qualifications by one week's trial in a steamer, after fulfilling the other tests to which he will be subjected.

8. He must show a knowledge of the use of brine cocks and blowing off, of the salinometer, and of the care of the boiler in salt-water.

9. Candidates for examination, in making the application on Form Exn. 3*a*, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them; but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service or are able to produce satisfactory testimonials, as the case may be.

10. The fee for examination under these rules is ten rupees, and the amount must be remitted with the application to the Port Officer. In any case in which a candidate offers money to any other officer than the Port Officer, and in any place but the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

11. If a candidate fails in his examination, *no part of the fee he has paid will be returned to him.*

12. In case of failure, candidates may be re-examined *de novo* after a lapse of six months, if the past examination showed that they might reasonably be expected to qualify.

13. Certificates of competency shall be made and issued by the Government in the form hereunto annexed.

14. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

TESTIMONIAL

I hereby certify that has served with me in the engine-room of as principal serang of for a period of , during which time he has discharged his duties to my entire satisfaction.

I consider that he fully understands the working of an engine, and has sufficient tact, presence of mind, and energy to look after and manage the working of the engines of a sea going steamer having engines of under 50 nominal horse-power.

Signed

No. and description of Certificate.

Note.—Any Engineer giving a testimonial in this form should be very careful in doing so, as the document may materially influence the applicant's eligibility as a candidate.

By the Honourable the Lieutenant-Governor of Bengal.

Government of Bengal.

Certificate of Competency

AS

ENGINE-DRIVER OF A SEA-GOING STEAM VESSEL UNDER ACT VII OF 1884.

To_____.

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of Engine-driver on a sea-going Steam-ship having engines of under 50 nominal horse-power, I do hereby, in pursuance of Act VII of 1884, grant you this CERTIFICATE OF COMPETENCY as Engine-driver.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

*The*_____*day of*_____18____. *Under-Secretary to the Govt. of Bengal.*

No. of Certificate

*Bearer*_____ *son of*_____ *by caste*_____

Date and Place of Birth, showing Village, Thana and District*_____

*Residence, showing Village, Thana and District*_____

*Height*_____

*Personal description, stating particularly any permanent marks or scars*_____

*No. of Register Ticket*_____

*Signature*_____

Any Engine-driver who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer of Calcutta.

*Issued at Calcutta on the*_____ *day of*_____ 18____.

Registered.

Port Officer of Calcutta.

* If not known exactly, must be stated on the best information or evidence.

NOTIFICATION.

No. 25 Marine, dated Calcutta, the 30th January 1890.

UNDER section 10 of the Indian Merchant Shipping Act, 1859, the Lieutenant-Governor is pleased, with the sanction of the Governor-General in Council, to make the following rules for the conduct of examinations for Masters and Mates of foreign-going ships and as to the qualifications to be required. These rules are in supersession of the rules issued under the notification dated the 28th of August 1877.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose examiners have been appointed, and arrangements have been made for holding the examinations periodically at the port of Calcutta. The examinations will be held twice a quarter, or at such other times as the Government may appoint.

Examinations continued till all the Candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the Candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Notice of application for examination to be given to the Port Officer.

3. Candidates for examination must make their application upon the appropriate Form (Exn. 2), which must be filled up at the Port Office. The Exn. 2, properly filled in, together with the Candidate's testimonials and discharges, must be lodged with the Port Officer of Calcutta not later than the day before the day of examination, and the Candidate must conform to any regulations in this respect which may be laid down by the Government, as, if this be not done, delay may be occasioned.

Testimonials of character, conduct, and ability required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges may have to be verified before the Candidate can be examined, it is desirable that they should be handed in together with the Form, Exn. 2, as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners, and of British Seamen serving in foreign vessels, which cannot be verified by the Port Officer, must be confirmed either by the Consul of the country to which the ship in which the Candidate served belonged, or by some other recognized official authority of that country, or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case will be decided on its own merits, and if the sufficiency of the proofs given appears to be at all doubtful, it must be referred to the Government.

Certificates as to age.

6. Should any doubt exist as to the age of a Candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British Vessel. In the case of natives of India, who may not be able to speak English, their Certificates will be endorsed to the effect that they are only valid for vessels manned and officered entirely by Asiatics.

8. The time for which length of service as Seaman or Officer in the Mercantile Marine is to be reckoned in all cases referred to in the following paragraphs is to commence at the date when the Articles of Agreement were signed by the Applicant, and to end at the date when he was discharged as shown on the Articles of Agreement. The Certificates of Discharge will generally be sufficient evidence of this, but great care must be exercised by the Port Officer and Examiners to detect any tampering in any way with the information contained in them, and to report to the Government at once any suspicious cases.

Verification of services, &c., by Articles

9. Services, which cannot be verified by proper Entries in the Articles of the Ships in which the Candidates have served, cannot be counted. For instance, a man will state his

service to have been as Second or Only Mate, and to support his assertion will produce a Certificate of Discharge or of employment by the Master, to the effect that he served as Mate, when, on reference to the Articles, it appears that he has actually been rated as Boatswain; the service in such a case will not be regarded as having been in the capacity of Mate.

Promotion during Voyage

10. Whenever a man has, from any cause, been regularly promoted on a vacancy in the course of the Voyage from the rank in which he first shipped, and such promotion, with the ground on which it has been made, is properly entered in the Articles and in the Official Log Book, he will of course receive credit for his service in the higher grade for the period subsequent to his promotion.

Service in the coasting trade

11. Service in the coasting trade may be allowed to count as service, in order to qualify a Candidate for examination for a Certificate of Competency for Foreign-going Ships, it being understood, however, that service in the coasting trade must amount to half as much again as service in the foreign trade, and that service in a lower grade than that of First or Only Mate in the coasting trade will not be recognised as officer's service.

12. Three years' service as Mate in the coasting trade, together with at least nine months' service as Master, may be allowed to count as service for a Master's Certificate, provided the Candidates' entire service at sea calculated as above is sufficient, and that his services as Mate and Master in the coasting trade can be proved by the Articles, and provided he has already passed an examination *for the Foreign Trade*, unless, *under special circumstances*, the Government see fit to dispense with this latter provision.

13. Service in Pleasure Yachts under 80 tons, if performed within Home Trade limits, will not be accepted towards qualifying a Candidate for examination.

14. Service in Pleasure Yachts will not be accepted at all unless verified by satisfactory proofs, and it must be distinctly understood that accepted service is confined to *actual sea service*, service in harbour or port being inadmissible. *See also para.* 21.

Service as an Apprentice.

15. Time for which Indentures of Apprenticeship are in force will be accepted as sea service, provided that the Apprentice has remained by the ship for at least four-fifths of the time covered by the Indentures, and the Indentures of the applicant are endorsed by the Owner or Master to whom he has been bound, to the effect that he has performed his service faithfully for the whole time agreed upon.

Service as 3rd or 4th Mate to qualify for 1st Mate.

16. Service as Third or Fourth Mate may be accepted as equivalent to service as Second Mate to qualify a Candidate for examination for a Certificate of Competency as First Mate, provided he is able to produce a satisfactory testimonial from the Master or owner of the vessel in which the service was performed, showing that he has had charge of a watch while serving as such Third or Fourth Mate, and that during the whole of the time claimed he was in possession of a Second Mate's Certificate of Competency, valid in the United Kingdom.

Service as 3rd or 4th Mate to qualify for Master.

17. Service as Third or Fourth Mate may also be accepted on the same conditions to qualify a Candidate for examination for a Master's Certificate of Competency, provided he can produce satisfactory evidence of his having served at sea 12 months as Second Mate of a Foreign-going Ship while in possession of a First Mate's Certificate of Competency, valid in the United Kingdom. If a Candidate has had no service as First Mate he must have been six and-a-half years at sea, of which two and-a-half years must have been as Mate of a lower grade under the above-named conditions. It will also be noted that occasional service in charge of a watch in the daytime will not be accepted as Mate's service under the Regulations.

Service on board a Training Ship.

18. Part of the time served on board a training ship will be allowed to count as service at sea, provided that the Candidate can produce amongst his testimonials a Certificate from the Committee that he has conducted himself reditably, and passed a good examination in seamanship so

far as practised in the training ship as well as in other matters down to the time of his leaving the ship.

19. No period of service on board a training ship will be allowed to count for more than one year's sea service, nor can it be accepted as equivalent to service in square-rigged vessels.

Service in Auxiliary Screw Whaling ships.

20. Service in Auxiliary Screw Whaling Ships and other Vessels with auxiliary steam power, which use their screws only in calms or during light winds, is considered as service performed in Sailing Vessels. Such service is not to be accepted in cases where service on board Foreign-going Steam-ships is required.

Service in Trawlers, Yachts, &c.

21. Service performed in Trawlers, Yachts, &c., *alone* will not qualify a Candidate for examination for a Foreign-going Certificate. He must show that he has served, in addition thereto, 18 months in an ordinary trading vessel.

Service in capacities other than as Apprentice or Seaman.

22. Candidates whose services have been in capacities other than Apprentice, Ordinary Seaman, or Able Seaman, *e.g.*, Cook, Steward, Carpenter, &c., will be required to satisfy the Port Officer that they have a good knowledge of Seamanship. This may possibly be proved by the production of satisfactory Certificates from Masters with whom the Applicants have served Failing satisfactory evidence, the Applicant may be required to perform additional service, which must be in the capacity of Ordinary Seaman or Able Seaman.

Service on rivers and in smooth-waters.

23. Service performed on rivers, no matter of what size, or in smooth-water or partially smooth-water cannot be accepted.

Loss of sight.

24. A person who has lost the sight of one eye cannot be allowed to be examined for a Certificate of Competency. If he already holds a Certificate, he will not be allowed to be examined for a Certificate of a higher grade.

Service in Light Ships and Engine-room.

25. Service in Light Ships or in an Engine-room will not be accepted as sea service for a Master's or Mate's Certificate of Competency.

26. In the case of service on board Excursion Steamers only such service as has been performed actually at sea can be accepted.

27. A First Class Pilot, with one year's Sea Service since he obtained his Pilot's Certificate, may be examined for a First Mate's Certificate for Foreign-going Ships. A Hooghly Master Pilot is for the purpose of this rule to be considerd a First Class Pilot.

Services as Pilot's Apprentice.

28. Half the amount of service performed as an Apprentice in a Pilot Vessel propelled by sails may count as actual Sea Service to qualify for examination for a Certificate of Competency.

Desertion and gross misconduct.

29. Candidates who have neglected to join their vessels after having signed Articles, or who have deserted their vessels after having joined, or who have been found guilty of gross misconduct on board, will be required to produce satisfactory proofs of two years' subsequent service and good conduct at sea, unless the Local Government after having investigated the matter should see fit to reduce the time.

If after passing examination services are found to have been insufficient.

30. If after a Candidate has passed his Examination it is discovered on further investigation, *e.g.*, by verification on the part of the Port Officer, that his services are insufficient to entitle him to receive a Certificate of the grade for which he has passed, it will not be granted to him; but if the Government is satisfied that the error in the calculation of his services did not occur through any fault or wilful misrepresentation on his part, he will be allowed to go up for re-examination without payment of further fee when he has performed the amount of service in which he was deficient.

Certificate of a lower grade may be granted in certain conditions.

31. If, in such a case, the applicant's services are sufficient to entitle him to receive a Certificate of a lower grade, provided as aforesaid he has not wilfully misrepresented the amount of his services, an Inferior Certificate may be granted to him, and the difference, if any, between the fee paid by him for the Superior Certificate and the fee payable for the Inferior Certificate, may be placed to his credit.

Must be re-examined for certificate of higher grade.

32. In such a case when the applicant has by further service made up the amount in which he was found to be short, he must, before he can receive the higher Certificate, be re-examined in all the subjects.

Colour Tests.

33. The Government have made the following arrangements for the Examination of persons as to their ability to distinguish Colours:—*

34. Examinations in Colour are open to any person serving or about to serve in the Mercantile Marine.

35. Any person, including the holders of Certificate of Competency, or persons about to apply for Certificates of Competency, if desirous of being examined *in colours only*, must make application to the Port Officer on Form Exn. 2ª, and pay a fee of one rupee.

36. He must on the appointed day attend for examination at the Examiner's Office; and if he passes he will receive a Certificate to that effect.

37. If he fails it will be open to him to be examined again in Colours as often as he pleases on payment of the fee of one rupee at each fresh attempt.

38. The application of a *Candidate who is presenting himself for Examination for a Master's or Mate's Certificate* must be made on Form Exn. 2.—Such examination will commence with the Colour test; and if the Candidate does not, at the time of making application, hold a Certificate of Competency of any grade, and should fail to distinguish correctly any one of the colours used in the test, he will not be allowed to proceed with the examination in Navigation and Seamanship.

39. The fee he has paid for Examination for a Certificate of Competency will include the fee for the Colour test, and, with the exception of one rupee, will, in such event, be returned to him.

40. A Candidate for Examination for a Certificate of Competency who, at the time of making application, does not possess a Certificate, and who fails to pass the colour test, may not be re-examined until after the lapse of three months from the date of his first failure. If he fails a second time, he will be allowed a third trial at the expiration of another three months from the date of his second failure. A fresh fee must be paid at each succeeding examination.

41. It is therefore obviously to the advantage of Candidates for Certificates of Competency to apply in the first instance to be examined in *Colours only* on Form 2ª.

42. A Candidate who holds a Certificate of Competency, and who, on presenting himself for Examination for a Certificate of a higher grade, is unable to pass the Colour test, will notwithstanding be permitted to proceed with the Examination in Navigation and Seamanship for the Certificate of the higher grade.

43. Should he pass this Examination the following statement will be written on the face of the higher Certificate which may be granted to him, viz.: "This officer has failed to pass the 'Examination in Colours.'"

44. Should he ultimately fail to pass the Examination in Navigation and Seamanship a like statement, relating to his being Colour blind, will be made by the Port Officer on his existing Certificate before it is returned to him.

45. Holders of Certificates which bear the statement of their having failed to pass in Colours, and who may desire to have the statement removed from their Certificates, must obtain the special permission of the Government.

Qualifications for Certificates of Competency for a "Foreign-going Ship."

Foreign-going Sailing Ships

46. EXAMINATION IN COLOURS.—All Candidates for Certificates of Competency must first be examined in colours.*

47. A SECOND MATE must be not less than seventeen years of age, and must have been four years at sea. He must also prove that he has served at least one year in a square-rigged sailing vessel within the last five years. *See also para.* 11. Second Mate.

On and after the 1st April 1890, no Candidate will be allowed to be examined unless he has served at sea two years

* *See* Appendix L.

within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined.

48. IN NAVIGATION, &c.—He must write a legible hand, and will be required to give in writing, *vide supplementary viva voce* test, page 37, definitions of various astronomical and other terms used in navigation.* He must have a competent knowledge of the first five rules of arithmetic, and the use of logarithms. He must be able to work a day's work complete, correcting the courses for deviation, lee-way, and variation. He will be required to find the latitude by meridian altitude of the sun, and the difference of longitude from a given departure by parallel sailing; also to find the course and distance from one position to another by Mercator's method. He will be required to find the time of high water at a given port, to observe and calculate the amplitude of the sun, and to find the error of the ship's compass therefrom, and also the deviation, the variation being given. He must be able to find the daily rate of the chronometer from error observed, and to find the longitude from altitude of the sun by the usual methods. He must understand the use of the sextant, with its adjustments, and be able to observe with it, find the index error by the horizon, and *read off* and *on the arc*.† He must also pass a satisfactory examination in the International Code of Signals.‡

49. IN SEAMANSHIP, &c.—He must give satisfactory answers as to the standing and running rigging of ships; as to bending, unbending, setting, reefing, taking in and furling sail; as to sending masts and yards up and down, &c., &c.; as to the management of a ship when under canvas; of a ship's boat in heavy weather, and as to dunnaging and stowing cargo, &c. He must have a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog, and sound signals,§ and be able to describe the signals of distress, and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals ‖ He must be able to mark and use the lead and log lines. He must also understand the use and management of the rocket apparatus in the event of his vessel being stranded, and other questions of a like nature appertaining to the duties of the Second Mate of a ship, which the Examiners may think necessary to put to him. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Second Mates' Certificates of Competency for Foreign-going Steam-ships.

50. AN ONLY AND FIRST MATE.—An Only Mate and a First Mate must be not less than nineteen years of age, and must have served five years at sea, of which in the case of a First Mate, one year must have been as Second or Only Mate. *See* also paras. 11, 16 and 27.

On and after the 1st April 1890, no Candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediataly preceding the date of his application to be examined.

Only and First Mate.

A Candidate for an Ordinary Certificate of *any* grade, who does not already hold an Ordinary Certificate of a lower grade, must prove that he has served 12 months in a square-rigged sailing vessel within the last five years.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined

51. IN NAVIGATION.—In addition to the qualifications required for a Second Mate, an Only and First Mate must be

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* *See* Appendix A.

† *See* Appendix B.
‡ *See* Appendix C.
§ *See* Appendix D.
‖ *See* Appendix E.

able to find the true bearing of the sun and the error of the ship's compass from an observed azimuth of the sun, both from an altitude and also from the "Time Azimuth Tables," and with the variation given compute the deviation; to find the latitude from a single altitude of the sun off the meridian, and be able to use and adjust the sextant,* and to find the index error by the sun; also to ascertain the true bearing of the sun, &c., and the ship's position by Sumner's Method by Projection.† He must also be conversant with the use of Mercator's Chart, and be able to find, on either a "true" or "magnetic" chart,‡ the course to steer and the distance from one given position to another; and find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of ship from the object at the time of taking the second bearing. He must also understand how to keep a ship's Log Book. He will also be required to answer certain questions in writing (*and orally*) relative to cyclones or revolving storms.§

52. In Seamanship, &c.—In addition to the qualifications required for a Second Mate, a more extensive knowledge of seamanship will be required, as to shifting large spars, rigging sheers, taking lower masts in and out, how to moor and unmoor ship, and to keep a clear anchor; to carry out an anchor; how to manage a ship in stormy weather; how to cast a ship on a lee shore; how to secure the masts in the event of accident to the bowsprit; and how to rig purchases for getting heavy weights, anchors, machinery, &c., in and out. He must give satisfactory answers as to the ventilation of holds and the stowage of explosives. He must also know how to rig a sea anchor, and what means to apply to keep a vessel disabled or unmanageable out of the trough of the sea, and lessen her lee drift; how to get a cast of deep sea lead in heavy weather; and answer any other questions appertaining to the duties of an Only and First Mate of a ship which the Examiners may think necessary to put to him. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Only and First Mate's Certificates of Competency for Foreign-going Steam-ships.

53. A MASTER must be twenty-one years of age, and have been six years at sea, of which one year must have been as First or Only Mate in a Foreign-going Ship, and one year as Second or Only Mate; or he must have been six and-a-half years at sea, of which two and-a-half years must have been as Second Mate of a Foreign-going Ship, during the last twelve months of which service as Second Mate he must have been in possession of a First Mate's Certificate. *Vide also paras.* 11, 12 and 17. Master.

On and after the 1st June 1889, no Candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

A Candidate for an Ordinary Certificate of any grade, who does not already hold an Ordinary Certificate of a lower grade, must prove that he has served 12 months in a square-rigged sailing vessel within the last five years.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the Candidate is allowed to be examined.

54. In Navigation.—In addition to the qualifications required for a Second, Only, and First Mate, a Master must be able to compute the latitude from the meridian altitude of a star, &c. He must be able to find the magnetic bearing from

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* *See* Appendix H.

† *See* Appendix I

‡ *See* Appendix F. The terms "true" and "magnetic" are used throughout the Regulations for the sake of brevity and convenience for indicating charts that have compasses engraved upon them showing the "true" or "magnetic" points of the compass respectively.

§ *See* Appendix K.

equidistant compass bearings of any fixed object when at sea, and compute the deviation therefrom. He must construct a deviation curve upon a "Napier's" diagram, which will be furnished by the Examiner, and understand the practical application of the same, and give satisfactory written (*and oral*) answers to certain practical questions on the effect of the ship's iron upon the compasses, the method of determining the deviation, and compensating same by magnets and soft iron.* He will be required to find the course to steer by compass in order to counteract the effect of a given current, and find the distance the ship will make good towards a given point in a certain time and to work out practically the correction to apply to soundings taken at a given time and place to compare with the depth marked on the chart.†

55. In Seamanship, &c.—In addition to the qualifications required of a Second, Only, and First Mate, he must be able to construct jury rudders for both wooden and iron vessels, and also rafts. He will be examined as to his resources for the preservation of the ship's crew in the event of wreck; as to the management of ships in heavy weather; as to rescuing the crew of a disabled ship; as to steps to be taken when a ship is on her beam ends, or in any danger or difficulty; or if disabled or unmanageable and on a lee shore; heaving a keel out, &c. He must explain the mode of procedure when placing ship in dry dock, directing repairs, and if putting in to port in distress with damage to cargo and ship. He must possess a sufficient knowledge of what he is required to do by law, as to entry and discharge, and the management of his crew, and as to penalties, and entries to be made in the official log, and a knowledge of the measures for preventing and checking the outbreak of scurvy on board ship, and the law as to load line marks, and the entries and reports to be made respecting them. He will be questioned as to his knowledge of invoices, charter party, bills of-lading, Lloyd's agent, and as to the nature of bottomry, also bills-of-exchange, surveys, averages, &c., and must answer any other questions of a like nature appertaining to the management of a ship which the Examiners may consider it necessary to touch upon. He will also be required to give satisfactory answers as to his knowledge of the additional subjects (applying more particularly to steam-ships) which are specified in the Rules of Examination for Masters' Certificates of Competency for Foreign going Steam-ships.

Fore and Aft rigged ships.

Certificates for Fore and Aft rigged Vessels.

56. Certificates for the grades of Master, First Mate, Only Mate, and Second Mate, on which the words "for Fore and Aft rigged vessels only" will be written, will be issued to Candidates who have not complied with the regulation which requires them to have served at least one year in square-rigged *sailing* vessels, or who prove in course of examination that they are ignorant of the management of square-rigged ships.

57. A certificate "for Fore and Aft rigged vessels only" will not entitle the possessor to act in a capacity for which a certificate is required in square-rigged vessels, amongst which are classed full-rigged ships, barques, brig, barquentines, brigantines, and steam-ships carrying square sails.

58. A Candidate possessing a certificate "for Fore and Aft rigged vessels only," and desiring to obtain an ordinary certificate of the same grade, must prove that he has served at sea at least one year in a square-rigged *sailing* vessel, and will be re-examined both in navigation and seamanship.

Foreign-going Steam-Ships.

Qualifications for Certificates of Competency for Foreign-going Steam-ships only.

59. Certificates of Competency will be issued, subject to the examinations hereinafter described, for officers who have served in steam-ships, and who, owing to absence of service in square-rigged sailing ships, cannot under the

* *See* Appendices G and M.
† *See* Appendix F.

existing regulations obtain Certificates of Competency to act in the capacity of Masters or Mates of square-rigged ships.

60. These certificates will entitle the holders to go to sea as Masters and Mates of foreign-going steam-ships, but will not entitle the holders to go to sea as Masters or Mates of foreign-going sailing ships.

61. There will be no distinction in respect of "Fore and Aft" and "Square-rigged" steam-ships.

62. EXAMINATION IN COLOURS.—All Candidates for Certificates of Competency must pass the examination in Colours.

63. A SECOND MATE must be not less than seventeen years of age, and must have been four years at sea. *See* also para. 11. Second Mate

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

64. IN NAVIGATION, &c.—He must write a legible hand, and will be required to give in writing (*vide supplementary viva voce test, page* 39) definitions of various astronomical and other terms used in navigation.* He must have a competent knowledge of the first five rules of arithmetic, and the use of logarithms. He must be able to work a day's work complete, correcting the courses for deviation, leeway, and variation. He will be required to find the latitude by meridian altitude of the sun, and the difference of longitude from a given departure by a parallel sailing; also to find the course and distance from one position to another by Mercator's method. He will be required to find the time of high water at a given port, to observe and calculate the amplitude of the sun, and to find the error of the ship's compass therefrom, and also the deviation, the variation being given. He must be able to find the daily rate of the chronometer from error observed, and to find the longitude from altitude of the sun by the usual methods. He must understand the use of the sextant with its adjustments, and be able to observe with it, find the index error by the horizon, and read *off* and *on* the arc.† He must also pass a satisfactory examination in the International Code of Signals.‡

65. IN SEAMANSHIP, &c.—He must give satisfactory answers as to the standing and running rigging of steam-ships; as to bending, unbending, setting, reefing, taking in and furling sail; as to sending masts and yards up and down, &c., &c., as to seeing everything in readiness and clear for getting under way, and as to the precautions to be then observed with regard to engines, propellers, &c.; as to the management of a steam-ship when under canvas; and of a ship's boat in heavy weather, and as to dunnaging and stowing cargo, &c. He must have a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog, and sound signals,§ and be able to describe the signals of distress and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals.‖ He must be able to mark and use the lead and log lines. He must also understand the construction, use, and action of the sluices, and of the water-ballast tanks, engine-room, telegraph, &c.; the use and management of the rocket apparatus in the event of his vessel being stranded, and other questions of a like nature, appertaining to the duties of the Second Mate of a steam-ship, which the Examiners may think necessary to put to him.

66. AN ONLY AND FIRST MATE.—An Only Mate must be not less than nineteen years of age, and must have served five years at sea. A First Mate must be nineteen years of age, and must have served five years at sea, of which Only and First Mate.

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* *See* Appendix A. † *See* Appendix B. ‡ *See* Appendix C.
§ *See* Appendix D. ‖ *See* Appendix E.

one year must have been as Second or Only Mate of a Foreign-going Steam-ship. *See also paras.* 11, 16 *and* 27.

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last three years immediately preceding the date of his application to be examined

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

67. IN NAVIGATION.—In addition to the qualifications required for a Second Mate, an Only or First Mate must be able to find the true bearing of the sun and the error of the ship's compass from an observed azimuth of the sun both from an altitude and also from the "Time Azimuth Tables," and with the variation given compute the deviation; to find the latitude from a single altitude of the sun off the meridian, and to be able to use and adjust the sextant,* and to find the index error by the sun; and also to ascertain the true bearing of the sun, &c., and the ship's position by Sumner's Method by Projection.† He must also be conversant with the use of Mercator's Chart, and be able to find on either a "true" or "magnetic" chart,‡ the course to steer and the distance from one given position to another; and find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of ship from the object at the time of taking the second bearing. He must also understand how to keep a ship's Log Book. He will also be required to answer certain questions in writing (*and orally*) relating to cyclones or revolving storms.

68. IN SEAMANSHIP.—In addition to the qualifications required for a Second Mate, a more extensive knowledge of seamanship will be required, as to shifting large spars, rigging sheers, taking lower masts in and out, how to moor and unmoor ship and to keep a clear anchor, to carry out an anchor; how to manage a steam-ship in stormy weather, and how to rig purchases for getting heavy weights, anchors, machinery, &c., in and out. He must give satisfactory answers as to the ventilation of holds, and the stowage of explosives. He must be able to describe the effects of the screw race upon the rudder; and the effect produced on the direction of the head of the ship by going [ahead] [astern] with a [right] [left] handed screw when the rudder is [ported] [starboarded]. He must also know how to rig a sea anchor, and what means to apply to keep a steamer with machinery disabled out of the trough of the sea, and lessen her lee drift. How to turn a steam-ship short round; how to get cast of deep sea lead in heavy weather, and other questions of a like nature appertaining to the duties of an Only and First Mate of a steam-ship, which the Examiners may think necessary to put to him.

Master.

69. A MASTER—Must be not less than twenty-one years of age, and have been six years at sea, of which one year must have been as First or Only Mate in a Foreign-going Steam-ship, and one year as Second or Only Mate; or he must have been six and-a-half years at sea, of which two and-a-half years must have been as Second or Only Mate in a Foreign-going Steam-ship, during the last twelve months of which he must have been in possession of a First Mate's Certificate. *See also paras.* 11, 12 *and* 17.

On and after the 1st April 1890, no candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

70. IN NAVIGATION.—In addition to the qualification required for a Second, Only, and First Mate, he must be able

* *See* Appendix R. † *See* Appendix I. ‡ *See* Appendix F.
Also page 24 foot-note ‡.

to compute the latitude from the meridian altitude of a star, he must be able to find the magnetic bearing from equidistant compass bearings of any fixed object when at sea, and compute the deviation therefrom. He must construct a deviation curve upon a "Napier's" diagram which will be furnished by the Examiner, and understand the practical application of the same, and give satisfactory written (*and oral*) answers to certain practical questions on the effect of the ship's iron upon the compasses, the method of determining the deviation, and compensating same by magnets and soft iron.* He will be required to find the course to steer by compass in order to counteract the effect of a given current, and find the distance the ship will make good towards a given point in a certain time, and to work out practically the correction to apply to soundings taken at a given time and place, to compare with the depth marked on the chart.†

71. In Seamanship, &c.—In addition to the qualifications required of a Second, Only, and First Mate, he must be able to construct rafts and jury rudders suitable for a screw steam-ship. He will be examined as to his resources for the preservation of the ship's crew in the event of wreck; as to the management of steam-ships in heavy weather; as to rescuing the crew of a disabled ship; as to steps to be taken when a ship is on her beam ends; or if disabled and on a lee shore. How to use steam appliances in the event of fire, and the best arrangement for towing vessels under different circumstances, placing ship in dry dock, directing repairs, and the mode of procedure if putting into port in distress with damage to cargo and ship. He must possess a sufficient knowledge of what he is required to do by law, as to entry and discharge, and the management of his crew, and as to penalties and entries to be made in the official log, and a knowledge of the measures for preventing and checking the outbreak of scurvy on board ship, and the law as to load line marks, and the entries and reports to be made respecting them. He will be questioned as to his knowledge of invoices, charter-party, bills-of-lading, Lloyd's agent, and as to the nature of bottomry; also bills-of-exchange, surveys, averages, &c., and answer any other questions of a like nature, appertaining to the management of a steam-ship, which the Examiners may consider it necessary to touch upon.

Service in Royal Navy.

72. Officers of the Royal Navy are at liberty to apply for Certificates of service and to be examined for Certificates of Competency in the Mercantile Marine, but they must submit their applications in the manner directed by the Lords Commissioners of the Admiralty. *Service in Royal Navy.*

73 Officers of the Royal Navy desirous of being examined for Certificates of Competency in the Mercantile Marine will be required to prove the following service, of which twelve months must have been sea service under sail alone.

74. For Second Mate.—A Candidate must produce satisfactory evidence of four years' service at sea, or that he has attained the rank of acting Sub-Lieutenant.

75. For Only Mate.—A Candidate must prove five years' service at sea.

76. For First Mate or Masters.—A Candidate must show that he has attained the rank of Sub-Lieutenant, or Navigating Sub-Lieutenant.

Voluntary Examination in the Laws of the Deviation of the Compasses of Iron Ships.

77. Any Master or Mate who wishes to pass a *voluntary* examination in the Syllabus* of examination on the Laws of the Deviation of the Compasses of an Iron Ship, &c., can at any time be examined upon filling up the form of application, and the payment to the Port Officer of the prescribed fee. If the candidate passes the examination successfully, an endorsement to that effect will be duly made upon the Master's or Mate's Certificate held by him. *Voluntary Examination of Masters and Mates in the Syllabus.*

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* *See* Appendice G and M. † *See* Appendix F. ‡ *See* Appendix A.

Failure.

Re-examination in case of failure

78. In all cases of failure the Candidate must be examined *de novo*. If a Candidate fails in *Seamanship* he will not be re-examined *until after a lapse* of SIX MONTHS. Whether the whole or part of this period must be served at sea must depend upon the subjects in Seamanship in which the Candidate failed, but what amount (if any) of sea service will be required will be left to the discretion of the Port Officer, subject, however, to revision by the Government, should they see fit.

79. The Examiners in making out their report on Form Exn. 14 should state what amount (if any) of further sea service the Candidate must perform, and they should also insert this information under Division H. in Form Exn. 2.*

80. If he fails three times in *Navigation* he will not be re-examined until after a lapse of THREE MONTHS from the date of the *last failure*.

Certificate of lower grade.

81. If a Candidate has failed in his Examination, but the subjects in which he has failed are not included in the subjects required for a Certificate of a lower grade, he may, if he desires it, receive a Certificate of such lower grade.

82. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled, for re-examination for the higher grade of Certificate he will be required to pay a further full fee.

83. If a Candidate fails for bad spelling or writing, he will not be re-examined until after a lapse of at least three months.

84. If a Candidate fails in his examination for an ordinary Certificate, he may, if qualified, and upon payment of another fee, &c., be examined for a Certificate of Competency for Foreign-going Steam-ships without waiting the usual time after failure.

Fees.

85. Candidates for examination, in making their application on Form Exn. 2, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause, except failure to pass the colour tests, not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be, they will be allowed to again present themselves for examination for a Certificate of the same grade without paying any further fee.

Fees to be paid by applicants for examination, s. 133.

86. The fee for examination must be paid to the Port Officer. In any case in which a Candidate offers money to any other officer, and in any place but in the Port office, the Candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be again examined for twelve months.

87. If a Candidate fail in his examination *no part of the fee will be returned to him.*

88. The fees are as follow:—

FOR "FOREIGN-GOING SAILING AND STEAM SHIPS."

	Rs.
Second Mate	12
First and Only Mate, if previously possessing an inferior certificate, either granted by the Board of Trade, or by the Government of a British Possession *under section* 8 *of the "Merchant Shipping (Colonial) Act*, 1869"	6
If not	12
Master	24
Where a Candidate is in possession of a Certificate for Fore and Aft rigged Vessels, for an Ordinary or Steam-ship Certificate of the same grade	12

* *See* Appendix H.

FOR "VOLUNTARY EXAMINATION IN STEAM."

	Rs.
Mate (Only or First)	12
Master	12

FOR "VOLUNTARY EXAMINATION IN DEVIATION OF THE COMPASS."

	Rs.
Mate (Second, Only or First)... ...	12
Master	12

GENERAL.

89. Certificates of Competency shall be made and issued by the Government in the forms hereunto annexed.

90. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate and the other shall be kept and recorded by the Port Officer of Calcutta.

90A. No application from the holder of a certificate granted by the Government of any other British Possession or by the Board of Trade to be examined for a certificate of the same legal value shall be entertained.

General Instructions to Examiners and Candidates.

Prohibited books and papers.

91. All instruments necessary for use in the examinations are supplied by the Government.

92. Before commencing the examination, the tables or desks must be cleared of all scraps of paper, or books that are not used in the examination, and care should be taken that the candidates do not bring into the examination room any book, paper, document, or memoranda of any description whatever. No person whatever should be allowed in the room during the time of examination, but those whose duties require them to be present.

93. No instructors will be allowed on the premises.

Candidates not to leave premises during examination.

94. Candidates will under no pretence whatever be allowed to leave the premises while the examination is proceeding. If a Candidate has occasion to visit the retiring room he will only be allowed to do so on the completion of the paper on which he may be engaged, when he will be required to enter in a book, kept for the purpose, the exact time of his leaving and returning to the examination room. When only a few Candidates are under examination, two persons will not be allowed to leave the room at the same time.

Position of Candidates at examination.

95. Candidates should be so placed as to prevent one copying from the other, and no communication whatever between the Candidates should be allowed.

Blotting paper.

96. If any blotting paper is allowed it should be black; and when the first examination paper is issued each Candidate should be furnished with a piece which should be returned to the Examiner upon the completion of the last paper.

How examination papers should be issued.

97. The examination papers should be issued to the Candidates in half sheets only, and one at a time. This will prevent a Candidate from spreading out the sheets on the table in an apparently careless manner, but so as to enable his nearest neighbour to look over and copy, or examine the problems. It will also enable the Examiner to look over and report upon the work on one half sheet, while the Candidate is at work upon another, and so on. When the errors are not too numerous, or when they are not from ignorance of the subject, the incorrect problems may be returned to the Candidate for correction, but in no case should the errors be pointed out by the Examiner, neither should any marks be made on the correct work of the problem, which would at once indicate how far or to what extent the work is correct. Should the problems be returned to the Examiner the second time incorrect, this would be a failure; and as the time allowed is considered ample for working out the papers carefully, this rule is expected to be strictly observed.

In certain cases problems may be corrected on morning following examination day.

98. When from the large number of the Candidates, it may be found impossible to look over the work, on the day of examination during the office hours, an hour in the morning of the following day may be allotted for the purpose of correcting the problems, but in no case should a Candidate have his problem returned to him for correction after he has made the second attempt.

Re Exn 4A

99. The paper (Exn. 4A) is only for those Candidates who present themselves for examination for the first time. It is intended not only to ensure on the part of the Candidate a knowledge of the meaning of a variety of terms of great use to the Navigator respecting which much ignorance exists at present, but at the same time to test his handwriting and spelling.

100. In using this paper, the Examiner will place a mark against the numbers of the particular questions which he selects for answers, and not less than ten questions should be selected. The Candidate will then write against the questions so marked his definition of the terms in a clear and legible hand, so as to prevent the possibility of any letter being mistaken. Attention should be paid to the spelling and writing of all grades of Candidates. The *supplementary viva voce* test should also be applied as usual.

Re-questions on Deviation of the Compass. (Exn. 7, Appendix G.)

101. In the questions on Deviation of the Compass (Exn. 7, Appendix G) the Examiner should indicate by a mark against at least twelve of the questions for answers, and those indicated must be correctly answered. The selected questions should be varied frequently, and no two Candidates should have precisely the same questions. The Candidate should be furnished with sheets of blank ruled paper which is supplied for that purpose with instructions that he is to write only on one side of the paper, and to answer each of the questions against which a mark is placed in a clear and legible hand, and to commence each answer by writing down the number of the question to which it relates in the margin left for that purpose. In answering question 19, besides giving a full explanation in writing, of the *tentative* method* of compass adjustment (accompanied by the usual *supplementary viva voce* test), the Candidates should be required to illustrate by diagrams how the poles of the magnets are placed with regard to the compass needle for correcting the semi-circular deviation, as well as the heeling error, and also how the soft iron should be placed for correcting the quadrantal deviation, or the Candidate may be tested by "Beall's Compass Deviascope," in which case it will not be necessary for him to give the written answer and sketches.

Viva voce examination.

102. In the *viva voce* examination a reasonable time should be allowed for the Candidate to give his answers. No assistance should be given or leading question put.

Adjustment of sextant.

103. Particular attention should be paid to the adjustments of the sextant, and the written answers should be given on the ruled paper in the same manner as the answers to the questions on Exn. 7, and the *supplementary viva voce* test applied as usual. Every Candidate should have a practical knowledge of what is known as the first three adjustments, and be able to read correctly *off* the arc, a supposed index error to be given by the Examiner as additive, as well as reading *on* the arc in the usual way.

Minor corrections.

104. All outstanding or minor corrections should appear in the margin of each problem paper; also on the chart papers Exn. 9C and Exn. 9D; and unless all these corrections appear on the papers of the Candidate they will not be considered complete.

Examination to commence with that for Second Mate.

105. In every case the Examination, whether for Only Mate, First Mate, or Master, is to commence with the problems for Second Mate.

Problems required as tests.

106. Examiners should bear in mind that the problems to be performed are required as tests, and for the purposes of an Examination, and not for sea-going or practical purposes alone.

107. The Candidates will be allowed to work out the various problems according to the method and the tables they have been accustomed to use.

Time allowed for Problems and Writings.

Time allowed for working problems.

108. *Candidates for Second Mates' Certificates of Competency* must complete the whole of their Examination in Navigation in *eight hours*, including the time allowed for writing the definitions (Exn. 4*a*), the paper on the adjustment of the sextant, and the correction of *all* errors and oversights; but

* See Appendix M.

the nautical problems on Forms "Exn. 4" and "Exn. 5" must be completed within *six hours*, and without the Candidates leaving the premises during that period.

109. *Candidates for Only and First Mates' Certificates* must complete the whole of their examination in Navigation in *twelve and-a-half hours*,* including the time allowed for the papers on the sextant; the chart; cyclones or revolving storms; and for the correction of *all* errors and oversights; but the nautical problems on Forms "Exn. 4," "Exn. 5," and "Exn. 6" must be completed within *six hours*, and without the Candidates leaving the premises during that period.

110. *Candidates for Certificates as Masters,' Ordinary*, must complete the whole of their examination in Navigation in *fifteen hours*; including the time allowed for the papers on the sextant; the chart; compass deviation; cyclones or revolving storms; and for the correction of *all* errors and oversights; but the problems on Forms "Exn. 4," "Exn. 5," and "Exn. 6," must be completed within *six hours*, and without the Candidates leaving the premises during that period.

111. *Candidates after finishing the problems required of the respective grades* on the first day of examination should proceed, until the end of that day, with such subjects as the definitions, sextant, chart, and Question 19 of Form "Exn. 7."

112. *The Sumner Problem* (*Exn. 6a*) must on no account be given out to any of the grades on the first day of the examination, but should be the commencement of the Candidate's work on the second day, and on completion of this problem the Candidates for Masters' Certificates should proceed with the problems on paper "Exn. 7."

113. *Candidates for Foreign-going Steam-ship Certificates of Competency* will be allowed the same amount of time to perform their navigation, &c., as hereinbefore laid down for the respective grades for the Ordinary Foreign-going Certificates.

114. *Deviation of the Compass.*—A period not exceeding eleven hours will be allowed to Candidates for the completion of the whole of the examination in the Syllabus, including the correction of all errors and oversights in both the problems and writings.

Additional time allowed in special cases.

115. Punctually at the expiration of the prescribed time all the papers should be called up, whether completed or not, and if not completed, the Candidate will be declared to have failed, unless the Port Officer or the Examiner see fit to lengthen the period in any special case. If, however, the period is lengthened in any case, the special circumstances of that case, and the reasons for lenthening the period, together with the time allowed, must be reported to the Government by the Examiners, in the column for "remarks" on the Form Exn. 14. It should be noted that the periods prescribed in the foregoing paragraphs are not intended to include the time occupied by the *viva voce* part of the examination.

116. It is anticipated that but few of the Candidates for Certificates of Competency for any of the foregoing grades will require the whole of the time herein allowed for completing their Examination in Navigation; and ample time has been prescribed, so that Candidates may perform their work in a careful, clear, and legible manner, and to the entire satisfaction of the Examiners.

Degree of Precision required in the Solution of the Problems.

117. In order to prevent any misapprehension as to the degree of precision required by the Regulations in working out the various problems in the Examinations for Masters' and Mates' Certificates, the attention of Examiners and Candidates is particularly directed to the following Instructions:—

(*a.*) Candidates are expected to work out their answers to all problems within or not to exceed a margin of *one mile of position* from a correct result (*e.g.*, in problems where the answer required is a latitude, longitude, or distance), excepting in finding the

* A Candidate other than Second Mate who may not previously have passed an examination may be allowed the time occupied in writing his definitions on Exn. 4*a*, in addition to the above.

ship's position by "Sumner's" method, where a margin of 2½ miles will be allowed.

(*b.*) In such problems as the "Amplitude" and "Alt-Azimuth," where the bearings, deviations, &c, only are required, a margin of 2′, or 3′, from a correct result will be sufficiently accurate.

(*c.*) In no problem is the Candidate for an "ordinary" Certificate required by the Regulations to correct for *second differences* in taking out the quantities from the Nautical Almanac.

(*d.*) In solving the "Time Azimuth" problem, an answer not exceeding half a degree from the exact result will be sufficiently near. But in all cases the actual latitude, declination, and time used, together with the exact bearing (from the North or South) as given in the tables, must be clearly shown by the Candidate on his papers.

(*e.*) In interpolating for the correct deviation to be applied in solving the Chart question, Papers "Exn. 9 C." and "Exn. 9 D," it will usually be sufficiently near if the Candidate works throughout with the nearest degree of deviation taken from the "Deviation Card," and even in cases where the deviations may vary but little, the nearest half degree used throughout will be sufficiently precise, and will at the same time prove whether the Candidate understands the method of arriving at the amount of, and applying, deviations. It is not necessary that the Candidate should waste his time in solving the course to *odd minutes* as is sometimes done.

(*f.*) In calculating the correction to apply to the Soundings, Question 5 of Paper "Exn. 9 D," the Candidate is not required to work out to the exact inch, as is sometimes done. It will be sufficiently near if he brings his answer within half a foot or so of a precise result.

It must be clearly understood in reading the foregoing Instructions that it is always provided the work of the Candidate is correct in principle.

Supplementary vivâ voce *Examination on written Papers.*

118. An impression prevails in regard to the examination of Masters and Mates, that so long as a Candidate can commit to paper correct answers to the various questions requiring written answers (*e.g.*, *Forms Exn. 4a*, *Exn. 7*, *Exn. 9a*, *Exn. 9c*, *Exn.* 32 70, *&c.*), no matter how indicative the answers may be of their having been learnt off by rote *only*, the duty and responsibility of the Examiners are at an end, and that they have no power or authority to reject a Candidate should his written answers be correct.

119. Lest, therefore, such an impression should prevail, Candidates for Certificates of Competency should bear in mind that they are not only expected to give correct written answers, which may merely be learnt off by rote, but they are expected to possess an intelligent knowledge of the various subjects prescribed in the Regulations, particularly as regards the important subject of the Deviation of the Compass.

120. This result may be easily attained by the Examiner putting a few *vivâ voce* questions to the Candidate as the papers are brought up for inspection, or at any subsequent time if more convenient. The oral questions (suggested by the printed questions and the answers given) should be such that the Examiner may satisfy himself that the candidate possesses a real knowledge of what he has written, and should be confined strictly to the subjects of the printed questions. Should the candidate then exhibit ignorance of the subjects, the Examiner (who is in a position to judge of the real knowledge the man before him possesses) should deal with him at his discretion, notwithstanding that the candidate may have written all the answers correctly by rote.

121. When an Examiner finds it necessary to fail a Candidate in this *supplementary vivâ voce* test, a memorandum containing the particulars of the points on which the candidate was ignorant, *i.e.*, *the identical questions and the identical*

answers given, must in each case be attached to his examination papers, when forwarded in the usual course to the Port Officer, or the particulars may be set forth by the Examiner in the margins of the candidate's papers in red ink.

122. If the Candidate passes, he will receive the Form Exn. 16, upon which the Government, will issue the Certificate to the candidate, whose testimonials, &c., will be returned at the same time. Form Exn. 16 Completion of examination

Special Notice to Candidates.

123.. The attention of Candidates is specially called to the following Regulations :—

124. Candidates are required to appear at the examination-room punctually at the time appointed.

125. Candidates are prohibited from bringing into the examination-room books, paper, or memoranda of any kind whatever. The slightest infringement of this regulation will subject the offender to all the penalties of a failure, and he will not be allowed to present himself for re-examination for a period of three months.

126. In the event of any Candidate being detected in defacing, blotting, writing in, or otherwise injuring any book or books belonging to the Government, the papers of such Candidate will be detained until the book or books so defaced be replaced by him. He will not, however, be at liberty to remove the damaged book, which will still remain the property of the Government.

127. In the event of any Candidate being discovered referring to any book or memoranda, copying from another, or affording any assistance or giving any information to another, or communicating in any way with another, during the time of examination or copying any part of the problems for the purpose of taking out of the Examination rooms, he will subject himself to all the penalties of a failure, and he will not be allowed to be examined for a period of six months.

128. No Candidate will be allowed to work out his problems on a slate or on waste paper.

129. No Candidate will be permitted to leave the room until he has given up the paper on which he is engaged.

130. Candidates will find it more convenient both here and at sea, to correct the declination and other elements from the Nautical Almanac by the "hourly differences." which have been given in that work in order to facilitate such calculations ; they will thereby render themselves independent of any proportional or logarithmic table for such purpose.

131. The corrections by inspection from tables given in some of the works on Navigation will not be allowed (*see* Tables IX, XI and XXI in Norie's Epitome, &c.) ; every correction must appear on the papers of the Candidates.

132. Any candidate who may be guilty of insolence to the Examiner or of other misconduct will render himself liable to the postponement of his examination, or, if he has passed, to the detention of his Certificate for such period as the Government may direct

133. For rules as to amount of time allowed to perform the work, *see* page 36.

Masters' and Mates' Voluntary Examinations in Steam.

134. These examinations are limited to Masters and First or Only Mates who are possessed of or entitled to Certificates of Competency, and are provided for the purpose of giving them an opportunity of undergoing a voluntary examination as to their practical knowledge of the use and working of the steam engine. They are conducted under the superintendence of the Port Officer at such times as they may appoint for the purpose ; and the Examiners are selected by the Government from the Engineer-Surveyors appointed under the Indian Steam Ships Act, 1884. *Voluntary Examinations in Steam.*

135. Any Master or Mate desiring to be examined in Steam must deliver to the Port Officer a statement in writing to that effect, upon the Form of Application (Exn. 2), and the applicant's Certificate of Competency must be delivered to the Port Officer along with his statement. If he is about to pass an examination for a Certificate of Competency at the same time, the applications should be sent in together. Application, how to be made. Exn. 2.

136. A fee of Rs. 12 must be paid by the applicant for the examination *in Steam*, and the Port Officer will thereupon inform him of the time and place at which he is to attend to Fee to be paid. Conduct of examination, &c.

be examined, and the examination will then and there proceed in the same manner as the other examinations. If the applicant fails, and has given in his Certificate, it will be at once returned to him.

Record of Certificate. Exn. 14.

137. If the applicant passes, the Report (Exn. 14.) and the Certificate of Competency with the Form (Exn. 2.) will be sent to the Government; the words "*Passed in Steam*," with the date and place of examination, will then be entered on the Certificate and its counterpart, and the Certificate will be sent to the Port Officer to be delivered to the applicant in the usual manner.

Failure.

138. If the applicant fails he may not present himself for re examination until the expiration of three months from the date of failure.

Extent of examination.

139. The examination is for the most part *vivâvoce*, and extends to a general knowledge of the practical use and working of the steam engine, and of the various valves, fittings, and pieces of machinery connected with it. Intricate theoritical questions on calculations of horse power or areas of cylinders and valves, or any of the more difficult questions which appertain to steam engines and boilers, will not be asked. The examination will in fact be confined to what a Master of a steam-vessel may be called upon to perform in the case of the death, incapacity, or delinquency of the engineer.

140. Examiners are to be careful in their examinations to satisfy themselves that applicants really do know the names and uses of the various parts of engines and boilers, and their connecting pipes, valves, cocks, &c. Practical knowledge, as distinguished from theories, abstruse calculations, and book learning, is to be the test of the applicant's fitness to have his Certificate indorsed.

Where examination to be conducted

141. The Examiner should arrange to conduct part of the examination in the engine-room of a Steam-ship, unless from circumstances he finds it impossible to do so; and if an oppportunity offer the applicant should be permitted, under the guidance of the Examiner, to start and stop the engine of some vessel which may have her steam up.

142. The Examiner, in sending in his report of examinations of Masters and Mates in steam, should state where the examination has been held.

Examination in elementary questions.

143. Candidates will be required to give written answers to sixteen out of twenty questions taken from a book of Elementary Questions pulished by the Government.* These questions will be altered from time to time without notice. The twenty questions are not to be difficult, theoretical, or book questions, but are to be such as any man of ordinary capacity ought to answer who has any "*practical knowledge of the use and working of the steam-engine.*"

Answers to be sent to the Board of Trade.

144. These questions, with the Candidate's answers, should be sent to the Government, with the reports, after each examination

145. These answers will also assist in enabling the Government to decide any question that may hereafter arise in cases where it is alleged that applicants have been improperly passed, or improperly rejected.

Candidates referring to books, &c., to be put down as failed.

146. The Examiners will be careful that if any Candidate refers to any book or paper or memorandum, or obtains information from another Candidate during the examination, he will be treated as having failed, will forfeit his fee, and will not be allowed to be re-examined for a period of three months.

In cases of failure Examiner to report questions that decided it.

147. The Examiners will report in the case of failure, the nature of the question or questions that decided the failure, or the point in the management of the engine in which the Candidate was deficient.

Service on board Steam-Ship unnecessary.

148. There is nothing in the Regulations requiring that applicants for the voluntary examination shall have served on board Steam-Ships; all that is required is that they shall have a "practical knowledge." Examiners will, of course, not fail to appreciate the fact, when passing applicants, that practical knowledge is best gained in the engine-room; and the examination of an Officer who does not produce official evidence of service in Steam Ships, and of experience of engines, must necessarily be more searching than in the case of one who produces evidence of such service and experience.

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*See Appendix. Q.

APPENDIX A.

N.B.—*The Candidate is to write a short definition against so many of the following terms as may be marked with a cross by the Examiner. The Examiner will not mark less than* 10. *The writing should be clear, and the spelling should not be disregarded.*

1. The Equator.
2. The Poles.
3. A Meridian.
4. The Ecliptic.
5. The Tropics.
6. Latitude.
7. Parallels of Latitude.
8. Longitude.
9. The Visible Horizon.
10. The Sensible Horizon.
11. The Rational Horizon.
12. Artificial Horizon and its use.
13. True Course of a Ship.
14. Magnetic Course.
15. Compass Course.
16. Variation of the Compass.
17. Deviation of the Compass.
18. The Error of the Compass.
19. Lee Way.
20. Meridian Altitude of a Celestial Object.
21. Azimuth.
22. Amplitude.
23. Declination.
24. Polar Distance.
25. Right Ascension.
26. Dip or Depression of the Horizon.
27. Refraction.
28. Parallax.
29. Semi-diameter.
30. Augmentation of Moon's Semi-diameter.
31. Observed Altitude.
32. Apparent Altitude.
33. True Altitude.
34. Zenith Distance.
35. Vertical Circles.
36. Prime Vertical.
37. Civil Time.
38. Astronomical Time.
39. Sidereal Time.
40. Mean Time.
41. Apparent Time.
42. Equation of Time.
43. Hour Angle of a Celestial Object.
44. Complement of an Arc or Angle.
45. Supplement of ditto.

APPENDIX B.

ADJUSTMENTS OF THE SEXTANT.

The Applicant will answer in writing, on paper which will be given him by the Examiner, all the following questions, numbering his answers with the numbers corresponding to the questions:—

Question.

1. What is the first adjustment of the sextant?
2. How do you make that adjustment?
3. What is the second adjustment?
4. Describe how you make that adjustment?
5. What is the third adjustment?
6. How would you make the third adjustment?
7. In the absence of a screw how would you proceed?
8. How would you find the index error by the horizon?
9. How is it to be applied?
10. Place the index at error of minutes to be added, clamp it, and leave it.

(NOTE.—The Examiner will see that it is correct).

11. The Examiner will then place the zero of the vernier on the arc, not near any of the marked divisions, and the Candidate will read it.

NOTE.—In all cases the applicants will name or otherwise point out the screws used in the various adjustments.

(*The above completes the Examination of Second Mates.*)

Candidates for Only Mates', First Mates', and Masters' Certificates will be required to give, in writing, replies to the following questions, *in addition* to those required of Candidates for Second Mates' Certificates as above.

1. How do you find the index error by the Sun?
2. The readings being { } What is the Index Error, and how do you apply it?
3. What proof have you that those measurements or angles have been taken with tolerable accuracy?

APPENDIX C.

EXAMINATION OF MASTERS AND MATES IN THE INTERNATIONAL CODE OF SIGNALS.

Instructions to Examiners.

The Government desire to direct the attention of the Examiners to the principal points connected with the International Code of Signals (which is to be treated as a subject in Navigation) as to which Candidates for Examination should be questioned in order to qualify for Certificates of Competency.

The Government would recommend to the Examiners a perusal of the *Report of the Signal Committee* of 1855 (which will be found at the commencement of the Signal Book), and also the *first few pages of the Book*. The information therein given will be found sufficient to make the Examiners theoretically acquainted with the characteristics of the Code, and the advantages it claims to possess over other Codes, and will enable them to appreciate and urge upon Candidates for Examination the facilities which this System of Signalling affords for easy and rapid communication.

The "comprehensiveness" and "distinctness" of the International Code are its chief recommendations.

The form of the Hoist generally indicates the nature of the Signal made, so that an observer can at sight understand the character of the Signal he sees flying.

The annexed plate gives examples which illustrate this.

The Examinations should tend to elicit a knowledge of the distinctive features of the Code above alluded to.

With this object the Examiners should make the 2, 3, and 4 Flag Signals on the Frame board which is furnished for the purpose *(always taking care first to show the Ensign and the Code. Pennant at the Gaff)*,* questioning the Candidates as to the distinguishing Forms of the respective Hoists (*See Plate annexed*), which will be indicated according as a Burgee, or a Pennant, or a Square Flag, is uppermost.

The Candidate ought to know how to find in the Signal Book the communication or the inquiry he desires to make, and how to make the Signal. The Signal to be made should *invariably* be sought for by the Candidate in the Vocabulary and Index, Part II, and never in Part I.

The Candidate ought to know how to interpret a Signal.

The Examiner should place a Signal on the Frame board and vary the Signal by showing a 2 or 3 Flag Signal, or a "Geographical" or a "Vocabulary" Signal, or the name of a Merchant Ship or a Ship of War.

The two latter signals would not of course be found in the Signal Book. The Candidate ought to point them out in the *Code List of Ships*.

A Candidate ought to be able to read off a Signal at sight, so far as to name the Flags composing the Hoist.

He ought to know the use of the Code Pennant, and of the Pennants C. and D., "Yes" and "No."

The Candidate should be practised in the use of the Spelling Table, by being made to spell his own name, or some word not in the Vocabulary of the Code.

A knowledge of the Distant Signals should be required of the Candidate, their object and the mode of signalling by the Distant Code, which will be found at the end of the Signal Book.

For this purpose two Black Balls, two Black Square Flags, and two Black Pennants will be furnished with the Frame board, and the Candidate should be required to make one or two Distant Signals, and to read off one or two made by the Examiners.

The Ball being the distinguishing symbol of the Distant Signal, any Pennants or Flags of the Code may be employed in conjunction with it, irrespective of colour. The Black Pennants and Flags are merely sent as showing best in the light background of the Frame board.

The Examiners should be careful to ascertain that the Candidate possesses a knowledge of the Distress Signals which came into operation November 1st, 1873.

Semaphores.

A plate at the end of the Signal Book explains the method by which the arms of the Semaphore are made to represent by their position (up, down, or horizontal,) the three symbols used for Distant Signalling, viz. a Flag, a Ball, or a Pennant. Before making Signals with the Semaphore, the Black Disc with the white rim should be placed on the top of the Semaphore Mast, as it properly forms a part of the Mast itself.

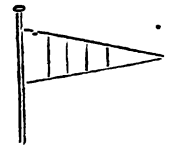
The International Code is used on board Her Majesty's Ships and it has been adopted by all the principal maritime powers for their Imperial as well as for their Mercantile Navies.

Note.—The International Code of Signals, with the Code List, is prepared by the Registrar-General of Shipping and Seamen, and may be had of the Publishers, Messrs. Spottiswood & Co., 54, Gracechurch Street, London, and the principal Booksellers at the various ports.

The Official Mercantile Navy List and Maritime Directory published for the use of Merchants, Shipowners, Shipbrokers, and others, may be obtained in like manner, price 12*s*.

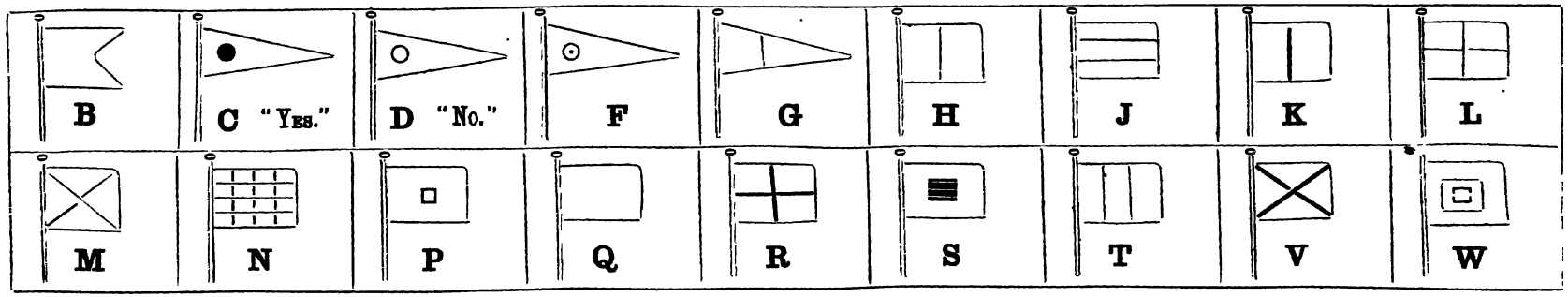
* The object of this is, of course, to distinguish the Signals from those of another Code.

FLAGS OF THE NTERNATIONAL CODE OF SIGNALS.



"CODE SIGNAL" AND "ANSWERING PENNANT."

N.B.—When used as the "Code Signal," this Pennant is to be hoisted under the "Ensign when used as the "Answering Pennant," where best seen.



The following examples will serve to illustrate how the *form of a Hoist* will usually denote the *nature of the Signal* made :—

ONE FLAG.	TWO FLAGS.			THREE FLAGS.		FOUR FLAGS.			
	BURGEE uppermost, "ATTENTION" Signals.	PENNANT uppermost, "COMPASS" Signals.	SQUARE FLAG uppermost, "URGENT" Signals.	General Signals.		BURGEE uppermost, GEOGRAPHICAL Signals.	PENNANTS C,D,F uppermost, NATIONAL VOCABULARY.	PENNANT G uppermost, Names of MEN-OF-WAR.	SQUARE FLAG uppermost, Names of MERCHANT SHIPS.
C "YES."	B D	F T	N C	K G P	P M V	B D T N	D V C H	G S M W	J M C Q
D "NO."	WHAT SHIP IS THAT?	W. BY S.	IN DISTRESS, WANT ASSISTANCE	ENGINE BROKEN DOWN.	CALL FOR ORDERS OFF—.	FALMOUTH.	WHAT SHIPS HAVE YOU SPOKEN?	"MARLBOROUGH" SCREW—131 GUNS.	"MARCO POLO," No. 6025.

APPENDIX D.

Regulations respecting Lights and Fog Signals and Steering and Sailing Rules Issued by the Board of Trade.

NOTICE.

The Board of Trade have had their attention drawn to the necessity of a more strict examination of applicants for Certificates of Competency in their knowledge of the regulations for preventing collisions at sea.

In order that the rule of the road at sea may be better understood, and that a uniform system of examination may prevail, the Board of Trade have issued the following catechism.

This catechism has received the approval of the Trinity House and Admiralty in England, and of the Council of the Admiralty of France.

The Board of Trade attach very great importance to a thorough knowledge of the steering and sailing rules on the part of every applicant for a Certificate of Competency, and a thorough examination on the part of the examiners.

All applicants for examination, whether for certificates as masters or mates, are to be examined as to their knowledge of the steering and sailing rules each time they present themselves for examination.

Questions suggested by the following heads of Examination are to be asked in addition to, and are not to supersede, any other questions proper and necessary to be asked by the Examiner.

The following questions need not be adhered to literally by the Examiner, and are not all to be asked; but the substance of the leading questions should be asked, and all that are asked should be satisfactorily answered, before an applicant is reported to have passed his examination. The Examiner should make such a selection of the questions as each case appears to him to require.

Thomas Gray,
Assistant Secretary.

Board of Trade,
Marine Department.

Heads of Examination in Regulations respecting Lights and Fog Signals and in the Steering and Sailing Rules.

1. What light or lights are required by the regulations to be exhibited by sailing vessels at anchor?

One light only, viz., a white light.

2. What light or lights are required by the regulations to be exhibited by steam-ships at anchor?

The same as for sailing vessels.

3. Where is the anchor light to be exhibited?

Where it can best be seen. It must of course be placed where there is the least possible chance of obstruction from spars, ropes, &c., &c.

4. To what height may the anchor light be hoisted?

It may be exhibited at any height where it can best be seen not exceeding 20 feet above the deck.

5. What is the description of the lantern containing the anchor light required by the regulations?

A globular lantern of not less than eight inches in diameter.

6. In what direction or directions must the anchor light show?

It must show a clear, uniform, and unbroken light, visible all round the horizon.

7. At what distance must it be visible?

At least one mile.

8. What is the number of lights required by the regulations to be carried by sailing ships when under weigh at night?

Two side-lights, and to have in readiness a white light or a flare-up light to show from their stern to any vessel overtaking them.

9. Of what colour are these lights, and how are they to be placed on board the ship?

A green light on the starboard side, and a red light on the port side.

10. What description of light must be shown from the sides of sailing vessels under weigh; and over how many points of the compass, and in what directions, and how far, are they required to show?

Each light must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass; so fixed as to throw the light from right ahead to two points abaft the beam on the starboard and port sides respectively;

and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

11. What lights are they to carry when being towed at night ?

The same.

12. Are the side-lights required to be fitted with screens ; and if so, of what length, and how ?

Yes, on the inboard side ; at least three feet in length, measuring forward from the light. They are to be so fitted as to prevent the coloured lights from being seen across the bows.

13. What is the number of lights required by the regulations to be carried by steam-ships when under steam at night ?

Three lights, and to have in readiness a white light or flare-up light to show from their stern to any vessel overtaking them.

14. Of what colour are these lights, and how are they to be placed on board the ship ?

A white light on or in front of the foremast at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth. A green light on the starboard side, and a red one on the port side.

15. Over how many points of the compass, in what direction, and how far, is the foremast-head light of a steamer required to show ?

Over 20 points, viz., from right ahead to two points abaft the beam on both sides. It must be of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

16. Are the side-lights required to be fitted with screens; and if so, of what length ?

The green and red lights are to be fitted with screens on the inboard side, extending at least three feet forward from the light, as in the case of sailing vessels.

17. Over how many points of the compass, in what directions, and how far, are the coloured side-lights of steamers required to show ?

The side-lights must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass, on each side of the ship, *i.e.*, from right ahead to two points abaft the beam on the starboard and port sides respectively, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles.

18. What description of lights are steamers required by the regulations to carry when they are not under steam, but under sail only ?

Side-lights only, the same as sailing vessels.

19. What exceptional lights are to be carried by small sailing vessels in certain cases ?

Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

20. What description of lights are pilot vessels required to carry when on their stations on pilotage duty ?

A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

21. What description of lights are pilot vessels required to carry when not on their station on pilotage duty ?

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

22. What lights are open boats and fishing vessels of less than 20 tons net register required to carry when under way and not actually engaged in fishing.

Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

23. What lights are fishing vessels and fishing boats of 20 tons net register, or upwards, required to carry when under way and not actually engaged in fishing?

They must carry similar lights to those of other ships when under way.

24. What lights are steam trawlers of 20 tons gross register, or upwards, whilst actually engaged in trawling, and not being stationary, required to carry?

All steam-vessels engaged in trawling must carry either one of the two following arrangements of lights, whichever of the two may be the more convenient:—

(*a*) The usual green and red side-lights, and foremast-head light, similar to those carried by other steam-ships; or

(*b*) They must carry on or in front of the foremast-head, and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side; such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: and (2) a white light in a gobular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform, and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet, nor more than 12 feet.

25. What lights are sailing trawlers whilst actually engaged in trawling, and not being stationary, required to carry?

All sailing vessels, of whatever tonnage, whilst engaged in trawling, must carry either one of the three following arrangements of lights, whichever of the three, (*a*), (*b*), or (*c*), may be the most convenient:—

(*a*) They may carry the green and red side-lights similar to those of other sailing ships; or

(*b*) They may carry on or in front of the foremast-head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side and the red light from right ahead to four points abaft the beam on the port side; and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet; or

(*c*) They may carry a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon, and visible on a dark night, with a clear atmosphere, for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by, another ship or vessel in sufficient time to prevent collision.

26. What lights are vessels whilst actually engaged in drift net fishing required to carry?

All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than 5 feet and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character and contained in lanterns of such construction as to show all round the horizon, on a dark night, with a clear atmosphere, for a distance not less than three miles.

27. What lights are vessels whilst actually engaged in line fishing required to carry?

A vessel engaged in line fishing is required to carry the same lights as a vessel engaged in drift net fishing.

28. If a vessel, when fishing, becomes stationary in consequence of her gear getting fast to a rock or other obstruction, what signal must she make?

She must show the same light, and if a fog, mist, or falling snow prevail, she must make the same fog signals as if she were at anchor.

29. What lights are fishing vessels and open boats required to exhibit when at anchor?

Between sunset and sunrise they must exhibit a white light, visible all round the horizon at a distance of at least one mile, the same as any other vessel.

30. What sound signals are fishing vessels required to make whilst engaged in fishing in thick weather?

In fog, mist, or falling snow, a drift net vessel attached to her nets, and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

31. May fishing vessels and open boats use flare-up lights, and if so, at what part, or parts, of the vessel should they be exhibited?

Yes. Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

32. Do these regulations referring specially to fishing vessels and boats apply to foreign vessels, and to all parts of the world?

No, with the exception of the *first paragraph* of Article 10 of the regulations, they apply only to British vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre.

33. What lights are steam-ships required to carry when towing other ships?

A steam-ship, when towing another ship, shall, in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light which other steam-ships are required to carry.

34. What light is a ship which is being overtaken by another required to show?

A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

35. Describe the lights and the day signals that vessels employed in laying or picking up a telegraph cable are required to carry.

A ship, whether a steam-ship or a sailing ship employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line over one another, not less than six feet apart: the highest and lowest of these lights shall be red and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than her foremast-head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

36. Describe the lights and the day signals that vessels which from any cause are not under command are required to carry.

A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same

position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of but not lower than her foremast-head, three black balls or shapes, each two feet in diameter.

37. Are the above-mentioned ships to carry side-lights?

The above ships, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

38. What are the previous mentioned shapes and lights intended to indicate to approaching ships?

These shapes and lights are to be taken by approaching ships as signals that the ship using them is not under command, and cannot therefore get out of the way.

39. Do these rules prevent squadrons and convoys from carrying special lights?

No. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war, or for ships sailing under convoy.

40. What sound signals are steam-ships and sailing ships required by the regulations to be provided with?

A steam-ship shall be provided with a steam whistle or other efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by bellows or other mechanical means, and also with an efficient bell. A sailing ship shall be provided with a similar fog-horn and bell.

41. When are these signals to be used?

In fog, mist, or falling snow, whether by day or night.

42. What sound signal is to be made by steam-ships and sailing ships when not under way?

A steam-ship and a sailing ship when not under way shall, at intervals of not more than two minutes, ring the bell.

43. What sound signal is required to be made by a steam-ship when under way?

A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

44. What sound signals are required to be made by sailing ships when under way?

A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

45. Do the regulations require ships to take any other precaution during thick weather?

Yes. Art. 13 says every ship, whether a sailing ship or steam-ship, shall, in a fog, mist, or falling snow, go at a moderate speed.

46. Is it optional for a steam-ship to make any other signals with her steam whistle?

Yes; but only to vessels in sight, *i.e.*, not to vessels which are so obscured by fog, mist, or falling snow that they cannot be seen, though their whistles may be heard.

Art. 19 provides that in taking any course authorised or required by the regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.:—

One short blast to mean "I am directing my course to starboard:"

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

47. What precaution is to be taken by steamers approaching another vessel?

If there is risk of collision, the steamer is to slacken speed, or, if necessary, stop and reverse.

48. If you see two white lights in a vertical line one over the other, what do they denote as regards the vessel carrying them?

They denote the presence of a steamer towing with her side lights not within sight on account of distance, fog, &c.; or a vessel end on to me engaged in drift net fishing, or in line fishing, or it may be a steam trawler end on, or within 2 points of being end on, to me.

49. If you see a green, or a red, light with a white light below, what do they denote?

They denote the presence of either a sailing, or a steam, vessel engaged in trawling.

50. If you see both the green and red lights with a white light below them, what do they denote?

They denote the presence of a sailing trawler coming end on to me.

51. If you see a white light alone, what does it denote as regards the ship carrying it?

It denotes the presence of a vessel or boat at anchor; or a pilot vessel on her station; or the mast-head light of a vessel, under steam, with her side-lights not within sight on account of distance, fog, &c., or a fishing vessel stationary through her gear getting fast to some obstruction, or a sailing traveller engaged in trawling (1) under one arrangement of lights heading so that her side-lights or obscured, (2) under another arrangement from the red pyrotechnic light not having been exhibited, or it may be a light shown from the stern of a vessel which is being overtaken.

52. If you see a green or a red light without a white light, or both a green and a red light without a white light, is the vessel carrying the light or lights seen, a vessel under steam or a vessel under sail?

A vessel under sail.

53. How do you know?

Because there is no white mast-head light.

54. If you see a white light over a coloured light, is the vessel a vessel under sail or a vessel under steam?

A vessel under steam. The mast-head light denotes that the vessel is under steam.

[The Examiner will then take one model of a vessel, which he will place on the table, and call it A. He will then take the mast or stand with a white and a red ball on it, and place it at the other end of the table and call it B.

The Examiner should be careful that the model of one vessel only is used when the questions numbered 55 to 60 are asked.]

55. A is a steamer going north, seeing a white light and red light right ahead at B. Are A and the vessel B showing the two lights meeting end on or nearly end on, or is B passing A, or is B crossing the path of A, and in what direction, and how do you know?

Passing to port, because if I see a red light ahead, I know that the head of the vessel carrying that red light must be pointing away in some direction to my own port or left hand. The ship showing the red light has her port or left side more or less open to A.

56. If A is going north, within what points of the compass must the vessel B showing the white and red lights be steering?

B must be going from a little W. of S. to W.N.-W.

57. How do you know this?

Because the screens being properly fitted, I could not see the red light of B at all with the vessel's head in any other direction.

58. A is a steamer going north, and seeing a white and green light ahead. Are A and B meeting, or is B passing A, or is B crossing the course of A, and in what direction; and how do you know?

B is passing to starboard of A, because if I see a green light ahead, I know that the head of the vessel carrying that green light must be pointing away in some direction to my starboard or right hand. The ship showing the green light has her right or starboard side more or less open to me.

59. As A is going north, within what points of the compass must the vessel showing the white and green lights be steering?

B must be going from a little E. of South to E.N.-E.

60. How do you know?

Because the screens being properly fitted, I cannot see the green light at all with the vessel's head in any other direction.

61. If a steamer A sees the *three* lights of another steamer B ahead or nearly ahead, are the two steamers meeting, passing, or crossing?

Meeting end on, or nearly end on.

62. Do the regulations expressly require the course of a ship to be altered to starboard in any case; and if so, when?

Yes; in the case of two steamers meeting end on, or nearly end on.

63. Do they expressly require the course of a ship to be altered to starboard in any other case; and if so, in what other?

No. It is not in any other case expressly required by the regulations.

[The Examiner should see that the candidate puts the models in the position indicated by the question 64, and following.]

64. If a steamer A sees another steamer's red light B on her own starboard side, are the steamers meeting, passing, or crossing; and how do you know?

Crossing, because the red light of one is opposed to the green light of the other; and whenever a green light is opposed to a red light, or a red light to a green light, the ships carrying the lights are crossing ships.

65. Is A to stand on; and if not, why not?

A has the other vessel B on her own starboard side. A knows she is crossing the course of B, because she sees the red light of B on her (A's) own starboard side. A also knows she must get out of the way of B, because Article 16 expressly requires that the steamer that has the other on her own starboard side shall keep out of the way of the other.

66. Is A to starboard or to port in such a case?

A must do what is right so as to get herself out of the way of B: it is generally preferable to pass under a ship's stern rather than attempt to cross her bows, but it depends entirely on the position and relative speed of the two ships, and therefore the regulations wisely leave the giving way ship to get out of the way in any manner that may be most desirable, so always that she does get out of the way.

67. If A gets into collision by porting, will it be because she is acting on any rule?

No; the rule does not require her either to port or to starboard. If she ports, and gets into collision by porting, it is not the fault of any rule.

68. If a steamer A sees the green light of another steamer B on her own (A's own) port bow, are the two steamers meeting, passing, or crossing; and how do you know?

Crossing, because the green light of one ship is shown to the red light of the other.

69. What is A to do, and why?

By the rule contained in Article 22 of the Regulations, A is required to keep her course, subject only to the qualification that due regard must be had to all dangers of navigation; and that due regard must also be had to any special circumstances which may exist in any particular case rendering a departure from that rule necessary in order to avoid immediate danger. The crossing ship B on A's port side must get out of the way of A, because A is on B's starboard side.

70. A, a steamer, sees the green light of another steamer, B, a point on her A's port bow. Is there any regulation requiring A to port in such a case; and if so, where is it to be found?

There is not any.

71. Are steam-ships to get out of the way of sailing ships?

If a steamer and a sailing ship are proceeding in such direction as to involve risk of collision, the steamer is to get out of the way of the sailing ship, unless the sailing ship is overtaking the steamer.

72. What is to be done by A, whether a steamer or a sailing ship, if overtaking B?

A is to keep out of the way of B.

73. When the by rules one of two ships is required to keep out of the way of the other, what is the other to do?

To keep her course. This is absolutely necessary to enable the commander of the ship required by the regulations to keep out of the way, to act with decision and promptitude, which he cannot possibly, unless he knows what the other vessel is going to do.

74. Is there any qualification or exception to this?

Yes. Due regard must be had to all dangers of navigation, and to any special circumstances which may exist in any particular case, and require a departure from the regulations to avoid immediate danger.

75. Is there any general direction in the steering and sailing rules; and if so, what is it?

Yes, it is this: that nothing in the rules shall exonerate any ship, or the owner, master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

76. Can you repeat article (———) of the regulations, I refer to the article containing the rule for (———)?

[The Examiner should repeat this question, naming a different article each time.]

77. What does the Act of Parliament provide as to the obligation of owners and masters in obeying the regulations respecting lights, fog signals, and steering and sailing?

Section 27 of "the Merchant Shipping Act Amendment Act, 1862," provides that owners and masters shall be bound to obey the regulations, and it also provides that in case of wilful default

by the master or owner he shall be deemed to be guilty of a misdemeanor for each infringement.

78. What do breaches of the regulations imply ?

If an accident happens through non-observance of the regulations, it implies wilful default on the part of the person in charge of the deck at the time, unless it is shown to the satisfaction of the court hearing the case that the special circumstances of the case rendered a departure from the rules necessary.

79. If collision ensues from a breach of there gulations, who is to be deemed in fault for the collision ?

The person by whom the regulations are infringed, unless the court hearing the case decides to the contrary.

80. Is there any special rule for steam-ships navigating narrow channels ?

In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which is on the starboard side of such ship.

81. Do the regulations apply to sea-going ships in harbours and in rivers ?

Yes: unless there is any rule to the contrary made by a competent authority.

82. Do they apply to British ships only ?

No, to foreign ships as well, with the exception of paragraphs (*a*), (*b*), (*c*), (*d*), (*e*), (*f*) and (*g*) of Article 10, which apply to only British fishing vessels.

83. Do you know where the present regulations are to be found ?

Yes, in the Orders in Council of the 11th August 1884, the 30th December 1884, and 24th June 1885. Copies are given away on application to the Board of Trade.

84. Is one ship bound to assist another in case of collision ?

Yes.

85. What is the penalty for default ?

If the master or person in charge of the ship fails to render assistance without reasonable excuse, the collision is, in absence of proof to the contrary, to be deemed to be caused by his wrongful act, neglect, or default.

86. Is there any other penalty attached to not rendering assistance ?

Yes. If it is afterwards proved that he did not render assistance, his certificate may be cancelled or suspended by the court investigating the case.

87. Is it not expected that you should understand the regulations before you take charge of the deck of a ship ?

It is.

88. Why ?

If I do not understand them and am guilty of default, the consequences will be very serious to me.

89. What would be a serious offence ?

To cause a collision by porting the helm or doing anything not required by the regulations and without due consideration.

Regulations for preventing collisions at sea. Order in Council of 11th August 1884.

Preliminary.

Art. 1. In the following rules every steam-ship which is under sail and not under steam is to be considered a sailing ship ; and every steam-ship which is under steam, whether under sail or not, is to be considered a ship under steam.

Rules concerning Lights.

Art. 2. The lights mentioned in the following Articles, numbered 3, 4, 5, 6, 7, 8, 9, 10 and 11, and no others, shall be carried in all weathers, from sunset to sunrise.

Art. 3. A sea-going steam-ship when under way shall carry—

(*a*) On or in front of the foremast, at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth, a bright white light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 20 points of the compass ; so fixed as to throw the light 10 points on each side of the ship, viz. from right ahead to two points abaft the beam on either side ; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

(*b*) On the starboard side, a green light so constructed as to show an uniform and unbroken light over an arc of the

horizon of 10 points of the compass; so fixed as to throw the light from right ahead to 2 points abaft the beam on the starboard side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*c*) On the port side, a red light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass; so fixed as to throw the light from right ahead to 2 points abaft the beam on the port side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*d*) The said green and red side-lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

Art. 4. A steam-ship, when towing another ship, shall in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position, as the white light which other steam-ships are required to carry.

Art. 5. (*a.*) A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of, but not lower than, her foremast-head, three black balls or shapes, each two feet in diameter.

(*b.*) A ship, whether a steam-ship or a sailing ship, employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over another, not less than six feet apart: the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than, her foremast-head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

(*c.*) The ships referred to in this Article, when not making any way through the water, shall not carry the side-lights, but when making way, shall carry them.

(*d.*) The lights and shapes required to be shown by this Article are to be taken by other ships as signals that the ship showing them is not under command, and cannot therefore get out of the way. The signals to be made by ships in distress and requiring assistance are contained in Article 27.

Art. 6. A sailing ship under way, or being towed, shall carry the same lights as are provided by Article 3 for a steam-ship under way, with the exception of the white light, which she shall never carry.

Art. 7. Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

Art. 8. A ship, whether a steam-ship or a sailing ship, when at anchor, shall carry, where it can best be seen, but at height not exceeding 20 feet above the hull, a white light, in a globular lantern of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light visible all round the horizon at a distance of at least one mile.

Art. 9. A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but

shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

Art. 10. Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

The following portion of this article applies only to fishing vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre:—

(*a*) All fishing vessels and fishing boats of 20 tons net registered tonnage, or upwards, when under way and when not required by the following regulations in this article to carry and show the lights therein named, shall carry and show the same lights as other vessels under way.

(*b*) All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than five feet, and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night with a clear atmosphere, for a distance of not less than three miles.

(*c*) A vessel employed in line fishing with her lines out shall carry the same lights as a vessel when engaged in fishing with drift nets.

(*d*) If a vessel when fishing becomes stationary in consequence of her gear getting fast to a rock or other obstruction, she shall show the light and make the fog signal for a vessel at anchor.

(*e*) Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this Article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

(*f*) Every fishing vessel and every open boat when at anchor between sunset and sunrise shall exhibit a white light visible all round the horizon at a distance of at least one mile.

(*g*) In fog, mist, or falling snow, a drift net vessel attached to her nets and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

Art. 11. A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

Sound Signals for Fog, &c.

Art. 12. A steam-ship shall be provided with a steam whistle or toher efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog horn to be sounded by a bellows or other mechanical means, and also with sh efficient bell.* A sailing ship shall be provided with a similar fog-horn and bell.

In fog, mist, or falling snow, whether by day or night, the signals described in this Article shall be used as follows; that is to say—

(*a*) A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

(*b*) A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the

* In all cases where the regulations require a bell to be used, a drum will be substituted on board Turkish vessels.

starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

(*c*) A steam-ship and a sailing ship, when not under way shall, at intervals of not more than two minutes, ring the bell.

Speed of Ships to be moderate in Fog, &c.

Art. 13. Every ship, whether a sailing ship or steam-ship, shall in a fog, mist, or falling snow, go at a moderate speed.

Steering and Sailing Rules.

Art. 14. When two sailing ships are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, viz.—

(*a*) A ship which is running free shall keep out of the way of a ship which is close-hauled.

(*b*) A ship which is close-hauled on the port tack shall keep out of the way of a ship which is close-hauled on the starboard tack.

(*c*) When both are running free with the wind on different sides, the ship which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free with the wind on the same side, the ship which is to windward shall keep out of the way of the ship which is to leeward.

(*e*) A ship, which has the wind aft shall keep out of the way of the other ship.

Art. 15. If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This Article only applies to cases where ships are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two ships which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are, when each of the two ships is end on, or nearly end on, to the other; in other words, in cases in which, by day, each ship sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each ship is in such a position as to see both the side-lights of the other.

It does not apply, by day, to cases in which a ship sees another ahead crossing her own course; or by night, to cases where the red light of one ship is opposed to the red light of the other, or where the green light of one ship is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

Art. 16. If two ships under steam are crossing, so as to involve risk of collision, the ship which has the other on her own starboard side shall keep out of the way of the other.

Art. 17. If two ships, one of which is a sailing ship, and the other a steam-ship, are proceeding in such directions as to involve risk of collision, the steam-ship shall keep out of the way of the sailing ship.

Art. 18. Every steam-ship, when approaching another ship, so as to involve risk of collision, shall slacken her speed or stop and reverse, if necessary.

Art. 19. In taking any course authorised or required by these Regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.—

One short blast to mean "I am directing my course to starboard:"

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

Art. 20. Notwithstanding anything contained in any preceding Article, every ship, whether a sailing ship or a steam-ship, overtaking any other shall keep out of the way of the overtaken ship.

Art. 21. In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such ship.

Art. 22. Where by the above rules one of two ships is to keep out of the way, the other shall keep her course.

Art. 23. In obeying and construing these rules due regard shall be had to all dangers of navigation; and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

No Ship, under any circumstances, to neglect proper Precautions.

Art. 24. Nothing in these rules shall exonerate any ship, or the owner, or master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

Reservation of Rules for Harbours and Inland Navigation.

Art. 25. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbour, river, or inland navigation.

Special Lights for Squadrons and Convoys.

Art. 26. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war or for ships sailing under convoy.

Art. 27. When a ship is in distress, and requires assistance from other ships or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, that is to say—

In the day-time—

1. A gun fired at intervals of about a minute.
2. The International Code signal of distress indicated by N C.
3. The distant signal, consisting of a square flag, having either above or below it a ball or anything resembling a ball.

At night—

1. A gun fired at intervals of about a minute.
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.).
3. Rockets or shells, throwing stars of any colour or description, fired one at a time, at short intervals.

ORDERS IN COUNCIL OF 30TH DECEMBER 1884 AND 24TH JUNE 1885.

ALTERNATIVE LIGHTS FOR TRAWLERS WHEN ENGAGED IN TRAWLING, HAVING THEIR TRAWLS IN THE WATER AND NOT BEING STATIONARY.

1884.—PART I.—STEAM-VESSELS OF 20 TONS GROSS REGISTER TONNAGE OR UPWARDS.

(1.) On or in front of the foremast head and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side, such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet nor more than 12 feet.

1884.—PART II.—SAILING VESSELS OF 20 TONS NET REGISTER TONNAGE OR UPWARDS.

(1.) On or in front of the foremast head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft

the beam on the port side: and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet.

1885.—Sailing Trawlers of any Tonnage.

As regards sailing vessels engaged in trawling, such vessels having their trawls in the water and not being stationary in consequence of their gear getting fast to a rock or other obstruction, if they do not carry and show the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in Part 2 of the Schedule to the said recited Order in Council of the 30th of December, 1884, shall carry and show in lieu of the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in paragraph 2 of the Schedule to the said recited Order, other lights as follows, that is to say:

A white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, and visible on a dark night with a clear atmosphere for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by another ship or vessel in sufficient time to prevent collision.

Aids to Memory in four verses, by Thomas Gray.

1. *Two Steam-ships meeting.*

When both side-lights you see ahead—
Port your helm and show your RED.

2. *Two Steam-ships passing.*

GREEN TO GREEN—or, RED TO RED—
Perfect safety—Go ahead!

3. *Two Steam-ships crossing.*

Note.—This is the position of greatest danger: there is nothing for it but good look-out, caution, and judgment.

If to your starboard RED appear,
It is your duty to keep clear;
To act as judgment says is proper:—
To port—or Starboard—Back,—or, Stop her!

But when upon your Port is seen
A Steamer's Starboard Light of GREEN,
There's not so much for you to do,
For GREEN to Port keeps clear of you.

4. *All Ships must keep a good look-out, and Steam-ships must stop and go astern, if necessary.*

Both in safety and in doubt
Always keep a good look-out;
In danger, with no room to turn,
Ease her, stop her, go astern.

14th October 1867.

APPENDIX E.

Distress and Pilot Signals.

The following sections, together with the schedules referred to therein, of the "Merchant Shipping Acts Amendment Act, 1873," relate to Signals of Distress and signals for Pilots. (*See also* "*Regulations for preventing Collisions at sea.*" *Article* 27.)

M. S. Act, 1873.

18. The signals specified in the first schedule to this Act shall be deemed to be signals of distress. Signals of distress.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals, except in the case of a vessel being in distress, shall be liable to pay compensation for any labour undertaken, risk incurred, or loss sustained in consequence of such signal having been supposed to be a signal of distress, and such compensation may, without prejudice to any other remedy, be recovered in the same manner in which salvage is recoverable.

Signals for pilots.

19. If a vessel requires the services of a pilot, the signals to be used and displayed shall be those specified in the second schedule to this Act.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals for any other purpose than that of summoning a pilot, or uses or causes or permits any person under his authority to use any other signal for a pilot, shall incur a penalty not exceeding twenty pounds.

Power to alter rules as to signals.

20. Her Majesty may from time to time by Order in Council repeal or alter the rules as to signals contained in the schedules to this Act, or make new rules in addition thereto, or in substitution therefor, and any alterations in or additions to such rules made in manner aforesaid shall be of the same force as the rules in the said schedules.

SCHEDULES.

SCHEDULE I.

Signals of Distress.

In the day-time.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress in the day-time:—

1. A gun fired at intervals of about a minute;
2. The International Code signal of distress indicated by N C;
3. The distant signal, consisting of a square flag having either above or below it a ball, or anything resembling a ball.

At night.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress at night:

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, of any colour or description, fired one at a time, at short intervals.

SCHEDULE II.

Signals to be made by Ships wanting a Pilot.

In the day-time.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot in the day-time, viz.—

1. To be hoisted at the fore, the Jack or other national colour usually worn by merchant ships, having round it a white border, one-fifth of the breadth of the flag; or
2. The International Code pilotage signal indicated by P T.

At night.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot at night, viz.—

1. The pyrotechnic light, commonly known as a blue light, every fifteen minutes; or
2. A bright white light, flashed or shown at short or frequent intervals, just above the bulwarks, for about a minute at a time.

APPENDIX F.

Examination in Chart.

For all Grades where the Chart is used.

[The candidate will be required to work out the following questions on either a "true" or "magnetic" chart* whichever may be handed to him by the Examiner; and also determine whether the chart is a "true" or "magnetic" one, and whether it is for the northern or southern, and eastern or western hemisphere.]

* The terms "true" and "magnetic" are used for the sake of brevity and convenience, for indicating charts that have compasses delineated upon them showing the "true" or "magnetic" point of the compass respectively.

1. Using deviation [card] [curve*] No. , find the course to steer by compass from to ; also the distance.

Answer. – Compass course °

Distance °

Variation °

Deviation °

2. With the ship's head on the above-named compass course a [point] [light-house] bore by compass and bore by the same compass, find the ship's position.

Answer.—Latitude

Longitude

3. With the ship's head as above, a [point] [light-house] bore by compass , and after continuing on the same course miles it bore , find the position of ship and her distance from at the time of taking the second bearing.

Answer.—Latitude °

Longitude °

Distance °

All the foregoing questions must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature °

Date °

Chart used °

Additional for Masters.

4. Find the course to steer by compass from to (*see* Question 1) to counteract the effect of a current which set at the rate of miles per hour, the ship making by log miles per hour; also the distance the ship would then make good in hours towards

Answer.—Compass course

Distance

5. On being off took a cast of the lead; required the correction to be applied to the depth obtained by the lead line before comparing it with the depth marked on the chart.

6. What do you understand the small numbers to indicate that you see placed about the chart, and at what time of tide?

7. What do the Roman numerals indicate that are occasionally seen near the coasts and in harbours?

8. How would you find, approximately, the time of high water at any place, the Admiralty tables not being at hand, nor any other special tables available?

All the foregoing questions, and those on Form Exn. 9C., must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature

Date

* A Candidate for a Master's Certificate is expected to use either a card of deviations or a curve of deviations on a Napier's diagram, whichever the Examiner may think proper to put before him.

APPENDIX G.

Deviation of the Compass.

N. B.—*The Examiner will not mark less than* 12 *of the following questions, which must be correctly answered by the candidate, and the Examiner's attention is specially called to the importance of Questions* 7, 8, 9, 10, *and* 19, *which should be marked in all cases.*

1. What do you mean by Deviation of the Compass?
2. How do you determine the deviation (*a*) when in port, and (*b*) when at sea?
3. Having determined the deviation with the ship's head on the various points of the Compass, how do you know when it is easterly and when westerly?
4. Why is it necessary, in order to ascertain the deviations, to bring the ship's head in more than one direction?
5. For accuracy, what is the least number of points to which the ship's head should be brought?
6. How would you find the deviation when sailing along a well-known coast?
7. In the following table give the correct magnetic bearing of the distant object, and thence the deviation:—

Ship's head by Standard Compass.	Bearing of distant object by Standard Compass.	Deviation required.	Ship's head by Standard Compass.	Bearing of distant object by Standard Compass.	Deviation required.
North			South		
N.-E.			S.-W.		
East			West		
S.-E.			N.-W.		

8. With the deviation as above, give the courses you would steer by the Standard Compass to make the following courses, correct magnetic [ ].
9. Supposing you have steered the following courses by the Standard Compass, find the correct magnetic courses made from the above deviation table [ ].
10. You have taken the following bearings of two distant objects by your Standard Compass as above; with the ship's head at , find the bearings, correct magnetic [ ].
11. Name some suitable objects by which you could readily obtain the deviation of the Compass when sailing along the coasts of the English Channel.
12. Do you expect the deviation to change; if so, state under what circumstances?
13. How often is it advisable to test the accuracy of your table of deviations?
14. State briefly what you have chiefly to guard against in selecting a position for the Compass.
15. The Compasses of iron ships are more or less affected by what is termed the heeling error; on what courses does this error vanish, and on what courses is it the greatest?
16. State to which side of the ship, in the majority of cases, is the North point of the Compass drawn in the Northern Hemisphere; and what effect has it on the assumed position of the ship when she is steering on Northerly, and also on Southerly courses?
17. The effect being as you state, on what courses would you keep away, and on what courses would you keep closer to the wind, in order to make good a given Compass course?
18. Does the same rule hold good in both hemispheres with regard to the heeling error?
19. Your Steering Compass having a large error, how would you proceed to correct that Compass by compensating magnets and soft iron, in order to reduce the error within manageable limits?

APPENDIX H.

Syllabus of Examination in the Laws of the Deviation of the Compasses of an Iron Ship, and in the Means of compensating or correcting it.

Candidates for the voluntary examination in Compass Deviation, and also for Extra Masters' Certificates, will be examined in the whole of this syllabus, and will be required to answer all

the questions correctly, and to the entire satisfaction of the Examiner.

1. Describe an artificial magnet, and how a steel bar or needle is usually magnetized.

2. [*For the sake of simplicity it is desirable to adopt the nomenclature of the Astronomer Royal, and call that pole of the compass needle that points to the magnetic north the red, and the other the blue pole.*] What effect has the pole of one magnet of either name on the pole of the same name of another magnet, and what would be the consequence of the pole of one magnet of either name being brought near enough to affect the pole of contrary name, if in these cases both magnets were freely suspended?

3. By applying this law to all magnets, natural as well as artificial, show what would be the result on a magnetic bar or needle, freely suspended, but by weight or by the nature of its mounting constrained to preserve a horizontal position; and what result, if so mounted, but free to move in every direction, the earth being regarded as a natural magnet?

4. Which is the red magnetic pole of the earth, and which the blue?

5. What is the cause of the variation of the compass?

6. What is meant by the deviation of the compass?

7. Describe the sub-permanent magnetism of an iron ship, and state when and how it is acquired, and which is the sub-permanent red, and which is the blue pole, and why it is called sub-permanent magnetism.

8. What is meant by "the composition of forces" and "the parallelogram of forces," and show how the knowledge of these is valuable in ascertaining and compensating the sub-permanent magnetism of an iron ship?

9. Describe the co-efficients B and C, plus (+), and minus (—), and why they are said to produce semi-circular deviations.

10. On what points by compass bearing of the ship's head does + B give westerly deviation, and on what does it give easterly; and also on what point does — B give westerly, and on what points easterly?

11. On what points does + C give westerly, and on what points easterly; also on what points does — C give westerly, and on what points easterly deviation?

12. How would you compensate the co-efficient C?

13. How would you compensate the co-efficient B?

14. If the value either of co-efficient B or C be given, also the magnetic direction of the ship's head while she was being built, how by the traverse tables would you determine the approximate value of the other co-efficient C or B; and if the value of both these co-efficients be given, how would you determine approximately the direction, by compass, of the ship's head whilst being built?

15. What is meant by transient induced magnetism?

16. Under what circumstances does induced magnetism give semi-circular deviation?

17. How would you compensate — B resulting from induced magnetism, and why for this purpose would you adopt a different mode of compensation to that employed in correcting — B produced by sub-permanent magnetism?

18. Describe quadrantal deviation, and state what co-efficients represent it; also on what points of the ship's head, by compass, each of these co-efficients gives the greatest amount of deviation.

19. On what points of the compass will each of these co-efficients, D and E + and —, give easterly, and on what points westerly deviation?

20. Generally + D gives the greatest amount of *quadrantal* deviation: how should it be compensated?

21. If D be compensated in the manner you have described, will it remain so in every latitude? If so, state the reason why.

22. What conditions of the iron of a ship will produce + D and what — D?

23. Describe the nature of the deviation resulting from + A and —A, and describe the error in the construction of the compass that frequently produces them.

24. Under what circumstances does the character of A and E so change as to render it desirable that these co-efficients should be disregarded or modified?

25. The value of A, B, C, D, and E being given, or B, C, and D only, find the deviation on any required point of the compass, or construct a table of deviation, if required.

26. Describe how you would determine the deviation by means of a distant object, by reciprocal bearings, or by the figures on the dock walls.

27. If it be required to determine the deviation of two or more compasses, it is most convenient to bring the ship's head, *correct* magnetic, on as many points as may be necessary. To determine the co-efficients B, C, and D, the bearing of the ship's head by each compass is required. How would you for this purpose employ a Graphic Method?

28 State your rule for determining whether deviation is easterly or westerly.

29. Describe the use of the "dumb card," or an azimuth card without a needle, in compensating a compass.

30. If you determine the deviation by an azimuth or an amplitude of a heavenly body, it is then combined with variation,* which together is sometimes called the *correction* for the compass. State when the deviation is the difference between the variation and the *correction*, and when the sum; and when it is of the same name as that of the *correction*, and when of the contrary name.

31. In observing azimuths of heavenly bodies, the best method is by "time azimuths," since these can be observed without an altitude when the ship is in port, or the horizon cannot be defined from any cause. Given the sun's declination, the hour of the day, and the latitude to find the true bearing of the sun.†

32. By night, if it be desirable to observe the *correction* of the compass. Given the day of the year, and time at ship, also the latitude of the place to determine what† star will be in good position for this purpose.

33. If your correcting magnets are so mounted that their positions can be altered, describe the process by which, on open sea, you can place the ship's head correct magnetic N. (or S.), and correct magnetic E. (or W.), and can make the correction perfect.

34. Given the name of a star, the time, the place of ship, the variation of the compass, and the bearing of the star by compass. Determine the deviation, and name it east or west.

35. If an ordinary standard compass placed higher than the iron top sides be compensated whilst the ship is upright, what coefficient will be effected by heeling?

36. When generally will this co-efficient be plus, and when minus?

37. State the exceptions to this general rule.

38. Does the heeling error arise from the altered position of the sub-permanent poles of the ship, or from a change in the induced magnetism?

39. To what extent is the heeling error altered by a change in the magnetic latitude of the ship?

40. If a ship is beating to windward; when she tacks, under what circumstances will the heeling error retain the same name, and under what circumstances will it take the contrary name?

41. If a ship is placed on the opposite tack by the change of wind, the ship's course being the same by compass, will the heeling error change its name?

42. Under what circumstances will the heeling error, if disregarded, take the ship to windward, or when to leeward?

43. Can the heeling error be compensated? If so, state the means to be employed.

44. Can the compensation of the heeling error be depended on in every latitude? If not, state the reason.

45. Given the heel, the direction of the ship's head by compass, and the heeling error observed, to find the approximate heeling error, with a greater or less given heel, and with the ship's head on some other named point of the compass, the ship's magnetic latitude being in both cases the same.

46. Describe any instrument to show the ship's heel (generally called a clinometer), and state how and where it should be fixed.

47. Should the clinometer be observed when the ship is swung to determine the deviation when the ship is upright? If so, state the reason why.

APPENDIX I.

PARTICULARS OF EXAMINATION IN SUMNER'S METHOD BY PROJECTION.

Candidates are required to compute their longitude by chronometer worked with two assumed latitudes.

* The magnetic variation is best determined by a chart of the curves of equal magnetic variation.

† The process of finding time azimuths by the ordinary formulæ of spherical trigonometry is tedious, and since on board an iron ship these observations should be often repeated, the candidate will be allowed to use any table or graphic or linear method that will solve the problem within a half of a degree, the altitude of the heavenly body not being given.

They are to mark off on the chart the two positions ascertained by the first altitude, and are then to connect them with a straight line, termed the *line of position*, or the line of equal altitude, which will show the bearing of any land it may intersect.

They will then be required to correct the first *line of position* for the ship's change of station, in the interval between the two observations, to project the *line of position* corresponding to the second observation on the chart, showing by its intersection with the first *line of position*, as corrected for change of station, the position of the ship at the time of the second observation.

The longitudes corresponding to the two latitudes by the second observation are no longer furnished by the Examiners. The candidates are consequently required to work out the whole of the problem for themselves (in place of the explanation recently required), and must be prepared to find the sun's true bearing by projection at the time of taking either the first or second observation; and when necessary to produce the *lines of positions* on the chart in order to make them out one another should the position of the ship happen to be outside the parallels of the two assumed latitudes given in the question. Outline charts, extending from 46° to 49° and from 49° to 52° of latitude, respectively, are furnished by the Board of Trade to the different examiners for this purpose.

APPENDIX K.

The Candidate must answer in writing, on paper supplied to him by the Examiner, the following questions, numbering the answer to correspond with the questions.

Question—

Questions relating to cyclones or revolving storms common in tropical seas.

1. The direction of the wind in a cyclone being*_____ state the probable bearing of its centre from the ship in the*_____ Hemisphere.
2. And suppose that the wind during the passage of the same cyclone were found to change towards the*_____ _____, what would be the ship's position with reference to the line of progression of the centre of the cyclone, and what action would you take?
3. Under what conditions would the change in the direction of the wind in the cyclone be the reverse of the above?
4. What are the usual indications of a ship being on the line of progression of the centre of a cyclone?
5. What are the usual indications that a ship is (*a*) approaching the centre of a cyclone; (*b*) receding from it?
6. Describe the track usually taken by cyclones in the †_____, and state the seasons of the year in which they most frequently occur in that region.

APPENDIX L.

Instructions to Examiners.

Examination in Colours.

Herewith are—

(*a*) A lanthorn having in it a lamp in which kerosine is to be burnt.

(*b*) A slide having ground glass in it.

(*c*) Nine slides, each having a coloured glass in it. The colours are as follows:—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1).
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

* These spaces to be filled in by the Examiners, and frequently varied.

† The Examiners to fill in whether North Atlantic, Bay of Bengal, China Seas, Indian Ocean, &c., &c.

(*d*) Cards, five of each as follow :—

1. White.
2. Black.
3. Red.
4. Pink.*
5. Green.
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (Cards.)

In conducting the examination by daylight, the examiner should do it in three ways—

1. The cards should be mixed up. The examiner should then hold up each card separately, and ask the candidate to name the colour, and if the candidate does so without hesitation, he is to be regarded as having passed the daylight test.
2. If the candidate hesitates in any of his answers, so as to raise a doubt in the mind of the examiner as to his ablity to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that, they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap.
4. The result of the examination should be noted and recorded in each case.

Examination by artificial Light.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn, and at least 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked if it appears to him to have any colour; and if so, what colour?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star * is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having "failed" if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c.; or to name card No. 7 as red, green, or yellow; or glass No. 2 as green, blue, or yellow; or glass No. 5 as red, pink, salmon, &c.; or glass No. 7 as bright red or bright green; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B.

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black, by daylight; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown), he may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.

APPENDIX M.

Instructions to Examiners.

Compass Adjustment.

It is of the utmost importance that masters of ships should thoroughly understand the tentative method of Compass Adjust-

ment as generally practised in merchant ships, and Examiners are therefore directed to fully satisfy themselves that all Candidates for Masters' Certificates have this particular knowledge. It should be tested in connexion with the Form of Examination, "Exn. 7," or it may be tested by Captain Beall's "Deviascope" at those ports which have been supplied with this instrument. Where the "Deviascope" is used it will not be necessary for the Candidates to give the written answers and sketches illustrative of the Question 19 of Form Examination 7.

A concise statement of the present method of tentative Compass Adjustment is forwarded for the use of Examiners. The Government wish them, however, distinctly to understand that the Government are not in any way advocating the correction of that part of co-efficient B which arises from vertical induction in soft iron by a permanent magnet instead of by a soft iron bar. The Government have no authority to interfere with the methods in use amongst Compass adjusters for the adjustment of Compasses in iron ships, but instruct the Examiners to satisfy themselves that masters are acquainted with the ordinary method as at present practised.

The examination by the "Deviascope" is at present only experimental, and no Candidate should be reported as having "failed" who does not pass the examination in it, provided he has answered satisfactorily the Question 19, "Exn. 7."

The "Deviascope" is sent only to three ports at present, and its extended use will depend upon experience at those ports.

The Tentative Method of Compass Adjustment as generally practised by Compass Adjusters in Ships of the Mercantile Marine.

Before describing the practice it will be as well to briefly state the co-efficients used to express the different magnetic forces:—

Co-efficient	A	represents	a constant quantity.
"	B	"	semi-circular deviation due to fore and aft magnetic forces.
"	C	"	semi-circular deviation due to transverse magnetic forces.
"	D	"	quadrantal deviation due to horizontal induction in soft iron.
"	E	"	quadrantal deviation due to horizontal induction in soft iron unsymmetrically distributed.

Signs and Effects of Co-efficients A, B, C, D, and E.

Co-efficient A represents a constant deviation of the same nature and amount, on all points of the compass; + A signifying easterly, and — A, westerly deviation.

Co-efficient + B represents an attraction towards the ship's head, and causes easterly deviations with ship's head in the eastern semi-circle of the Compass, and westerly deviations in the western semi-circle, attaining a maximum value on the east and west points, decreasing to zero on north and south points, by Compass.

Co-efficient — B represents an attraction towards the ship's stern, and causes easterly deviations with ship's head in the western semi-circle, and westerly deviations with the ship's head in the eastern semi-circle, with a maximum value on the east and west points, decreasing to zero on the north and south points, by Compass.

Co-efficient + C represents an attraction towards the starboard side of the ship, and causes easterly deviations with ship's head in the northern semi-circle, and westerly deviations in the southern semi-circle, attaining a maximum value on the north and south points, decreasing to zero on the east and west points, by Compass.

Co-efficient — C represents an attraction towards the port side of the ship, and causes westerly deviations with ship's head in the northern semi-circle, and easterly in the southern semi-circle, attaining a maximum value on the north and south points, decreasing to zero on the east and west points, by Compass.

Co-efficient + D gives easterly deviations with ship's head between N. and E. and S. and W., and westerly deviations between S. and E. and N. and W.

Co-efficient — D gives results exactly the reverse to + D.

Note.—Both + D and — D have a maximum value on the four quadrantal points, and become zero on the cardinal points by Compass.

Co-efficient + E gives easterly deviations with ship's head between N.E. and N.W. and S.E. and S. W. and westerly deviations between N.E. and S.E. and N.W. and S.W.

Co-efficient — E gives results exactly the reverse to + E.

Note.—Both + E and — E have a maximum value on the cardinal points, and become zero on the four quadrantal points, but are usually very small in amount in Compasses placed in the middle line of the ship.

Heeling Error.—The heeling error arises partly from vertical induction in transverse iron, and iron vertical to the ship's deck, and partly from the vertical component of the sub-permanent magnetism of the ship. In the Northern Hemisphere in the majority of cases the N. point of the Compass needle is drawn to windard or the high side of the ship, with, as a rule, a maximum heeling error on N. and S. points, and zero on E. and W. points by Compass. If the Compass is not properly placed in the ship, there may be a sensible heeling deviation on E. and W. courses.

Tentative Corrections.

To correct co-efficient C.—With ship's head north or south, magnetic, place a bar magnet (or more than one if necessary) horizontally and exactly athwart ship, either on the deck or on any convenient platform, with its centre on the fore and aft line passing through the centre of the Compass card, placing its red or marked end to starboard if the N. point of the needle deviates to the starboard side, or to port if it deviates to the port side of the ship, moving the magnet to or from the Compass until it points correctly.

Note.—The deviation represented by co-efficient C varies inversely as the earth's horizontal force, providing the iron is symmetrically arranged on each side of the Compass.

To correct co-efficient B.—With ship's head east or west, magnetic, place a bar magnet (or more than one if necessary) horizontally and exactly parallel to the fore and aft midship line of the ship, either on the deck or on any convenient platform, with its centre on the athwart ship line passing through the centre of the Compass, the red or marked end of the magnet being directed aft if the end point of the Compass needle deviates towards the stern, or forward if it deviates towards the bow, moving the magnet to or from the Compass until it points correctly.

Note.—The co-efficient B consists of two parts: one is due to the permanent magnetism of the ship, which varies inversely as the earth's horizontal force; the other to vertical induction in soft iron, which varies as the tangent of the dip. As ships in the merchant service are rarely built with a view of providing a satisfactory position for the standard Compasses, it is very difficult in many ships to find a position for it where it will not be affected by vertical iron. It follows, therefore, that if this deviation be compensated, as is customary, by a fore and aft permanent magnet instead of by a vertical soft iron bar, the poles of the magnet may in some cases require to be reversed in high southern latitudes.

To correct co-efficient + D.—With ship's head on one of the quadrantal points, magnetic, the + D is generally corrected by boxes of small chain, cylinders of soft iron, or soft iron globes placed athwart ships on the same level, and at equal distances, on the port and starboard sides of the Compass, with the centre of their mass on a level with the Compass needle, move them to or from the Compass till the needle points correctly.

To correct co-efficient—D.—Co-efficient—D, which is of very rare occurrence, is corrected by placing the above correctors on the fore and aft sides of the compass.

Note.—When once the co-efficient D is properly corrected by soft iron it is correct for all magnetic latitudes, provided the distribution of the iron in the ship is not materially changed, and provided the magnetism of the soft iron has not been affected by the Compass needles. With short needles having small magnetic power, such for instance as Sir Wm. Thomson's, there will probably be no change; but when the needles are long and powerful, one-half the original D may be expected to return when approaching the magnetic equator. *See* Admiralty Manual, 1882, page 96, as follows:—"When "a compass with long and powerful needless is employed, "soft iron correctors placed very near it become mag- "netized by induction according to the power of the

needles, and the resulting correction will not remain strictly perfect in all latitudes."

To correct Heeling Error.—The heeling error is corrected for any given magnetic latitude by placing a vertical magnet exactly under the centre of the Compass card, with its N. or red pole uppermost if the heeling error is to windward or to the high side of ship, or its S. or blue end uppermost if to leeward or to the low side of ship, moving the magnet to or from the Compass until the heeling error is corrected.

Note.—The heeling error, due to the permanent par of the magnetism, varies inversely as the earth's horizontal force, and consequently is greatest in high latitudes, diminishes as the ship approaches the magnetic equator, and increases again, still retaining the same name, as the ship recedes from the magnetic equator in the Southern Hemisphere. The heeling error, due to transverse and vertical soft iron, decreases as the ship approaches the magnetic equator, where it is zero, and is of a contrary name in the Southern Hemisphere. It is probable that the poles of the vertical magnet may require to be reversed in high southern latitudes.

A divided scale should be marked or fitted outside the tube or some other convenient place, so as to show the proper position for the correcting magnet as found in any given magnetic latitude, and the same recorded as a guide for approximately placing the magnet in position on any subsequent voyage in the same locality, and especially on the return of the ship to the United Kingdom.

Candidates should understand that the object of tentative adjustment is to bring the deviations within manageable limits, and also to equalise the directive force of the needle so far as is practicable on all courses; but no system of adjustment whatever is sufficiently reliable in character to absolve the navigator from the necessity of using every precaution, and especially of ascertaining the deviation on every available opportunity by observations of the sun by day and the other heavenly bodies by night.

APPENDIX N.

(From Memorandum on Examination of Engineers.)

EXAMINATION OF A MASTER OR MATE IN STEAM

The regulations under which these examinations are conducted are printed at pages 41 to 43 of the regulations for examinations of masters and mates. (Exn. 1.)

A candidate for this examination is required to have a thorough grasp of the construction of the steam engine and boiler, to enable him, in the first place, to understand the nature and importance of any defect which may be reported to him by the engineer, and so that he may work in harmony with the engineer in affording time and facilities for disconnexions, inspections, adjustments, and repairs.

To have a looking-on knowledge of what the principal repairs are about engines and boilers and pipes, and how these repairs are accomplished.

To be able to form an independent opinion as to a breakdown and the consequent propriety or impropriety of proceeding under steam with temporarily repaired or defective machinery.

To understand how to estimate approximately the reduction of fuel required for reduced speed, and consequently to sanction such reduction of speed as may seem to him to be warranted by the report of the engineer, and to satisfy himself before leaving port that there is sufficient coal for the voyage.

To have an intelligent grasp of the general run of pipes and connexions in the engine room, the marking of cocks, the opening and closing of cocks and valves, how mistakes of importance may be made in the confusion of an accident, and how best to guard against such mistakes.

To be capable of being left in charge of the feeding of a set of boilers, to understand the working of the water-gauge, and to be able to guard against being misled by false indications of the gauge glass.

To understand about blowing down and surfacing, the reasons for doing so, and the danger which may result from the neglect of these under certain circumstances. A master or mate presenting himself for examination in steam must be understood to have made up for his want of practical experience by reading up

about the steam engine. He ought, therefore, to show that he has given his mind to intelligently understanding the *rationale* of the action of the steam engine. Under this head, he should, therefore, be able to state approximately the quantity of heat required in the formation of steam, the remarkable relation of "latent" heat to "sensible" heat, using these popular names, how much steam can be raised by the combustion of one pound of coal, what horse-power measure is, what indicated horse-power is, the action of the slide-valve, the course of the steam through the engine, the advantage of working expansively, and how the expansive action is shown by the indicator diagram.

The candidate has to answer in writing 16 out of 20 questions selected from the book of Elementary Questions * Selections for this examination are given on the alphabetic sheet for "Steam." Generally, these answers are given by candidates as learned by rote from a book; the candidate should therefore be asked such *vivâ voce* questions as will necessitate his giving his answers in different words, so as to discover whether he has the root of the matter in him.

The principal part of the *vivâ voce* is the examination on board a steamer, preferably one with which he is unacquainted. He is told to look about and try to find out the run of the machinery without the assistance of any one; the Examiner to be in the engine-room to see that this independent examination is properly carried out. When the candidate reports that he thinks he knows the whole arrangement of the machinery, the Examiner will then question him on the uses of the parts, get him to point out the different cylinders, pumps, valves, condenser, &c. He must show that he understands the run of the pipes in the bilges, not necessarily that he has gone over every one of them, but he ought to be directed to trace, at least, one important range of pipes, and to thoroughly satisfy the Examiner that he could be safely trusted to manipulate the valves or cocks in connexion therewith. It will not often be practicable for the candidate to be asked to actually work engines under steam, but he must satisfy the Examiner that he knows how to do so, and that he is aware what precautions have to be taken in regard to water in the cylinder, &c. It is most important that a candidate should show that, in the event of an accident depriving him of the assistance of engineers, he knows what to do to safely take his vessel to an anchorage, or to stop the engines and proceed under sail alone.

The examination of a mate in steam is the same as that of a master. The knowledge is not with reference to the mate's position. A mate may be examined, but such examination implies that the mate will one day be a master, when the possession of the knowledge will be an advantage to him in the discharge of his duties as master.

APPENDIX O.

The following is a reprint of

INSTRUCTIONS

TO

EXAMINERS OF MASTERS AND MATES.

1. The Examiners already understand that they are to be very careful (in examining all applicants for Certificates of Competency) to satisfy themselves that the applicants understand the Rule of the Road at Sea, and should decline to pass every applicant who does not understand it.

2. As a serious misapprehension has, however, arisen in a recent case in which Sound Signals were being made by a steamer under way in thick weather, contrary to the express wording of Articles 12*a* and 19 of the Regulations, it is more than ever incumbent on Examiners not to pass any applicant unless the Examiner is satisfied that the applicant understands that the Signals named in Article 19 are purely optional, and are only allowed to be made in cases in which the weather is so clear that the ship making them has the other vessel in sight.

3. Any Master using these *optional* Sound Signals, even when the other vessel is in sight, does so in every case on his own

* Printed at end of Engineers' Regulations, Exn. 1*a*.

responsibility; but if he uses them when the other vessel is *not* in sight, he commits a very serious act of disobedience to the Regulations, and must abide the consequences of his illegal act.

4. Applicants must be made to understand that the compulsory Sound Signal which *must* be made by a steamer under way in a fog is a prolonged blast under Article 12*a*, and no other Sound Signal.

5. In examining an applicant on the application of Articles 12 and 13, the Examiner should, by answers to questions, ascertain that the applicant understands that it is his duty to go at a moderate speed in fog, while, as regards Article 24, the Examiner should impress on the applicant that an "ordinary precaution" to be observed in the navigation of a steam-ship in a fog is to get the way off his own vessel immediately he hears the Sound Signal of another steamer, and then he should go ahead very slowly, blowing the "prolonged blast" at intervals, and feeling his way until all danger of collision is passed.

APPENDIX P.

FORMS used in connection with the EXAMINATION and CERTIFICATES of MASTERS AND MATES.

Name of Form.	Initial Letters and Numbers.
Regulations relating to the Examinations of Masters and Mates.	Exn. 1
Masters' and Mates' Form of Application for Examination.	Exn. 2
Form of Application for Examination (Colours) ...	Exn 2*a*.
Examination Paper, to be used in the examination of Second Mates.	Exn. 4
Ditto, to be used by all candidates when appearing for examination for the first time only.	Exn. 4*a*.
Ditto, Second Mates	Exn. 5
Ditto, Only and First Mates	Exn. 6
Ditto, ditto ditto	Exn. 6*a*.
Ditto, Masters, Ordinary	Exn. 7
Ditto, for adjustments of the Sextant ...	Exn. 9*a*.
Ditto, Examination in Chart (for Mates)...	Exn. 9*c*.
Ditto, (for Masters)	Exn. 9*d*.
Examiners' Report of Masters' and Mates' Examination	Exn. 14
Examiners' Authority for delivery of Certificate to successful candidate.	Exn. 16
Examiners' Certificate (Colours)	Exn. 16*d*.
Ditto authority for return of Fee to unsuccessful candidate (Colours).	Exn. 17*a*.
Ditto Report on Colours tests	Exn. 17*b*.
Application for renewed Certificate	Exn. 23
Deviation cards	Exn. 24
Napier's Diagram	Exn. 25
Examination paper on Cyclones on revolving storms ...	Exn. 32

Government of Bengal.

BENGAL.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act*, 1869.

Colonial Certificate of Competency

AS

MASTER.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of MASTER in the Merchant Service, I do hereby, in pursuance of Act I of* 1859, *grant you this Certificate of Competency.*

By order of the Government of Bengal,

*this*_____*day of*_____18____.

Under-Secy. to the Govt. of Bengal.

Registered at the Office of the Port Officer of Calcutta.

BENGA

No. of Certificate [redacted]

Address of Owner _____

Date and Place of Birth _____

Signature _____

This Certificate is given upon an ORDINARY EXAMINATION passed at _____ *on the* _____ *day of* _____ 18——.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the _____ *day of* _____ 18——.

_____



t of Bengal

BENGAL.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, issu
under section 8 of the Merchant Shipping (Colonial) Act, 1869.

Colonial Certificate of Competency

AS

FIRST MATE.

No.

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to f*
ies of FIRST MATE in the Merchant Service, I do hereby, in pursuance of Act I of 1859, grant you this Certifi
etency.

By order of the Government of Bengal,

this ——— *day of* ——— 18—.

Under-Secy. to the Govt. of Bengal,

Registered at the Office of the Port Officer of Calcutta.

BENGAL.

No. of Certificate [redacted]

Address of Owner _____

Date and Place of Birth _____

Signature _____

This Certificate is given upon an ORDINARY EXAMINATION passed at _____ *on the* _____ *day of* _____ 18—.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at the Port of Calcutta on the _____ *day of* _____ 18—.

_____

_____

BENGAL.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, *issued under section* 8 *of the Merchant Shipping (Colonial) Act,* 1869.

Colonial Certificate of Competency

AS

ONLY MATE.

To_____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of ONLY MATE in the Merchant Service, I do hereby, in persuance of Act I of* 1869, *grant you this Certificate of Competency.*

By order of the Government of Bengal.

*this*_____ *day of* _____ 18____.

Under-Secy. to the Govt. of Bengal.

Registered at the Office of the Port Officer of Calcutta.

BENGAL.

No. of Certificate 

*Address of Owner*_____

*Date and Place of Birth*_____

*Signature*_____

*This Certificate is given upon an ORDINARY EXAMINATION passed at*_____*on the*_____
*day of*_____18__.

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty n exceeding Rs. 500. This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under t Imperial Act 25 and 26 Vic., cap. 63, sec. 23, to cancel or suspend Certificates.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to t Port Officer, Calcutta.

*Issued at the Port of Calcutta on the*_____*day of*_____18__.

_____

_____

BENGAL.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

In accordance with Her Majesty's order in Council of the 29th June 1882, issued under section 8 of the Merchant Shipping (Colonial) Act, 1869.

Colonial Certificate of Competency

as

SECOND MATE.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of SECOND MATE in the Merchant Service, I do hereby, in persuance of Act I of 1859, grant you this Certificate of Competency.*

By order of the Government of Bengal,

this _____ *day of* _____ 18—.

Under-Secy. to the Govt. of Bengal.

Registered at the Office of the Port Officer of Calcutta.

(83)

BENGAL.

No. of Certificate [redacted]

*Address of owner*_____

*Date and Place of Birth*_____

*Signature*_____

*This Certificate is given upon an ORDINARY EXAMINATION passed at*_____ *on the*_____ *day of*_____ 18 .

Any MASTER or MATE who fails to deliver up a certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500. *This Certificate is liable to be cancelled or suspended by any Court or Tribunal which has power under the Imperial Act* 25 *and* 26 *Vic., cap.* 63, *sec.* 23, *to cancel or suspend Certificates.*

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Port Officer, Calcutta.

*Issued at the Port of Calcutta on the*_____ *day of*_____ 18 .

_____

_____

NOTIFICATION.

No. 26 Marine, dated Calcutta, the 31st January 1890.

UNDER the powers conferred upon him by section 10 of Act I of 1859, and with the sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules for the examination of persons desirous of obtaining local certificates of competency as Masters and Mates in the Mercantile Marine. These rules supersede those contained in the Notification of the General (Marine) Department of this Government, dated the 28th August 1877, and published in the *Calcutta Gazette* of the 29th idem.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed, and arrangements have been made for holding the examinations periodically at the Port of Calcutta. The examinations will be held twice a quarter or at such other times as the Government may appoint.

Examinations continued till all the Candidates are examined.

2. The examinations will commence early in the forenoon, and will be continued from day to day until all the candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Notice of application for examination to be given to the Port Officer.

3. Candidates for examination must make their application upon the appropriate Form (Exn. 2), which must be filled up at the Port Office. The Exn. 2, properly filled in, together with the Candidate's testimonials and discharges, must be lodged with the Port Officer of Calcutta, not later than the day before the day of examination, and the Candidate must conform to any regulations in this respect which may be laid down by the Government; as, if this be not done, delay may be occasioned.

Testimonials of character, conduct and ability required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges have to be verified before the Candidate can be examined, it is desirable that they should be handed in together with the Form Exn. 2 as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners and of British seamen serving in foreign vessels, which cannot be verified by the Port Officer, must be confirmed either by the Consul of the country to which the ship in which the Candidate served belonged, or by some other recognized official authority of that country, or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case will be decided on its own merits, and if the sufficiency of the proofs given appears to be at all doubtful, it must be referred to the Government.

Certificates as to Age.

6. Should any doubt exist as to the age of a Candidate he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel. In the case of natives of India, who may not be able to speak English, their Certificates shall be endorsed to the effect that they are only valid for vessels manned and officered entirely by Asiatics.

Verification of Services by the Port Officer.

8. The time for which length of service as Seaman or Officer in the Mercantile Marine is to be reckoned in all cases referred to in the following paragraphs is to commence at the date when the articles of agreement were signed by the applicant, and to end at the date when he was discharged as shown in the articles of agreement. The certificates of discharge will generally be sufficient evidence of this, but great care must be exercised by the Port Officer and Examiners to detect any tampering in any way with the information contained in them, and to report to the Government at once any suspicious cases.

9. Services which cannot be verified by proper Entries in the Articles of the Ships in which the Candidates have served cannot be counted. For instance, a man will state his service to have been as Second or Only Mate, and to support his assertion will produce a Certificate of Discharge or of Employment by the Master to the effect that he served as Mate, when, on reference to the articles, it appears that he has actually been rated as Boatswain: the service in such a case will not be regarded as having been in the capacity of Mate.

Service as an Apprentice.

10. Time for which Indentures of Apprenticeship are in force will be accepted as sea service, provided that the Apprentice has remained by the ship for at least four-fifths of the time covered by the Indentures, and that the Indentures of the applicant are endorsed by the Owner or Master to whom he has been bound to the effect that he has performed his service faithfully for the whole time agreed upon.

Service as 2nd, 3rd or 4th Mate to qualify for Master.

12. Service as Second, Third, or Fourth Mate may be accepted as equivalent to service as First or Only Mate to qualify a Candidate for examination for a Master's Certificate of Competency, provided he can produce satisfactory evidence of his having served at sea 12 months as Second, Third, or Fourth Mate of a Foreign-going Ship while in possession of a First Mate's Certificate of Competency, valid in the United Kingdom. It will be noted that occasional service in charge of a watch in the daytime will not be accepted as Mate's service under the Regulations.

Service on board a Training Ship.

13. Part of the time served on board a training ship will be allowed to count as service at sea, provided that the Candidate can produce amongst his testimonials a Certificate from the Committee that he has conducted himself creditably, and passed a good examination in seamanship so far as practised in the training ship as well as in other matters down to the time of his leaving the ship.

14. No period of service on board a training ship will be allowed to count for more than one year's sea service.

Service in capacities other than as Apprentices or Seaman.

15. Candidates whose services have been in capacities other than Apprentice, Ordinary Seaman, or Able Seaman, *e.g.*, Cook, Steward, Carpenter, &c., will be required to satisfy the Port Officer that they have a good knowledge of Seamanship. This may possibly be proved by the production of satisfactory Certificates from Masters with whom the applicants have served. Failing satisfactory evidence, the applicant may be required to perform additional service, which must be in the capacity of Ordinary Seaman or Able Seaman.

Service on rivers and in smooth water.

16. Service performed on rivers, no matter of what size, or in smooth water or partially smooth water limits, cannot be accepted.

Partial loss of sight.

17. A person who has lost the sight of one eye cannot be permitted to be examined for a Certificate of Competency. If he already holds a Certificate, he cannot be examined for a Certificate of a higher grade.

Service in Light-ships and Engine-room.

18. Service in Light-ships or in an Engine-room will not be accepted as sea service for a Master's or Mate's Certificate of Competency.

Service as Hooghly Master Pilot.

19. Service as a First Class Pilot will be accepted as qualifying for examination for a Master's Certificate for Home Trade Ships, notwithstanding that he may not have served in the capacity of Mate, but only provided that his *Sea Services* are sufficient. For the purpose of this rule, a Hooghly Master Pilot will be held to be a First Class Pilot.

Service as Pilot's Apprentice.

20. Half the amount of service performed as an Apprentice in a Pilot Ship propelled by sails may count as actual Sea Service to qualify for examination for a Certificate of Competency.

Service in Tug Boats.

21. Service performed in Tug Boats employed in Sandheads Service or outside Port limits may be accepted as Sea Service for qualifying for a Mate's Certificate for Home Trade Ships. Service on Hooghly River survey vessels may be accepted on the same conditions. Service in the Hooghly Pilot vessels at the Sandheads is Sea Service.

Desertion and gross misconduct.

22. Candidates who have neglected to join their vessels after having signed Articles, or who have deserted their vessels after having joined, or who have been found guilty

of gross misconduct on board, will be required to produce satisfactory proofs of two years' subsequent service and good conduct at sea, unless the Government, after having investigated the matter, should see fit to reduce the time.

If after passing examination services are found to have been insufficient.

23. If after a Candidate has passed his Examination it is discovered on further investigation, *e.g.*, by verification on the part of the Port Officer, that his services are insufficient to entitle him to receive a Certificate of the grade for which he has passed, it will not be granted to him; but if the Government are satisfied that the error in the calculation of his services did not occur through any fault or wilful misrepresentation on his part, he will be allowed to go up for re-examination without payment of a further fee when he has performed the amount of service in which he was deficient.

Certificate of a lower grade may be granted on certain conditions.

24. If in such a case the applicant's services are sufficient to entitle him to receive a Certificate of a lower grade, provided as aforesaid he has not wilfully misrepresented the amount of his services, an Inferior Certificate may be granted to him, and the difference, if any, between the fee paid by him for the Superior Certificate and the fee payable for the Inferior Certificate, may be placed to his credit.

Must be re-examined for certificate of higher grade.

25. In such a case, when the applicant has by further service made up the amount in which he was found to be short, he must, before he can receive the higher Certificate, be re-examined in all the subjects.

Colour Tests.

26. The Local Government have made the following arrangements for the examination of persons as to their ability to distinguish colours :—*

27. Examinations in Colour are open to any person serving or about to serve in the Mercantile Marine.

28. Any person, including the holders of Certificates of Competency, or persons about to apply for Certificates of Competency, if desirous of being examined *in Colours only*, must make application to the Port Officer on Form Exn. 2ª, and pay a fee of one rupee.

29. He must on the appointed day attend for examination at the Examiner's Office; and if he passes he will receive a certificate to that effect.

30. If he fails it will be open to him to be examined again in Colours as often as he pleases on payment of the fee of one rupee at each fresh attempt.

31. The application of a *Candidate who is presenting himself for Examination for a Master's or Mate's Certificate* must be made on Form Exn. 2. Such examination will commence with the Colour test; and if the Candidate does not, at the time of making application, hold a Certificate of Competency of any grade, and should fail to distinguish correctly any of the colours used in the test, he will not be allowed to proceed with the examination in Navigation and Seamanship.

32. The fee he has paid for Examination for a Certificate of Competency will include the fee for the Colour test, and, with the exception of one rupee, will in such event be returned to him.

33. A Candidate for Examination for a Certificate of Competency who, at the time of making application, does not possess a Certificate, and who fails to pass the Colour test, may not be re-examined until after the lapse of three months from the date of his first failure. If he fails a second time, he will be allowed a third trial at the expiration of another three months from the date of his second failure. A fresh fee must be paid at each succeeding examination.

34. It is therefore obviously to the advantage of Candidates for Certificates of Competency to apply in the first instance to be examined in *Colours only* on Form Exn. 2ª.

35. A Candidate who holds a Certificate of Competency, and who, on presenting himself for Examination for a Certificate of a higher grade, is unable to pass the Colour test, will notwithstanding be permitted to proceed with the Examination in Navigation and Seamanship for the Certificate of the higher grade.

* *See* Appendix O.

36. Should he pass this examination, the following statement will be written on the face of the higher Certificate which may be granted to him, viz.—"This Officer has failed to pass the Examination in Colours."

37. Should he ultimately fail to pass the Examination in Navigation and Seamanship, a like statement, relating to his being Colour blind, will be made by the Port Officer on his existing Certificate before it is returned to him.

38. Holders of Certificates which bear the statement of their having failed to pass in Colours, and who may desire to have the statement removed from their Certificates, must obtain the special permission of the Government.

Qualifications for Certificates of Competency for a Home Trade Ship.

40. All Candidates for Certificates of Competency must first be examined in Colours.*

41. A MATE must be not less than 19 years of age, and have served four years at sea.

No candidate will be allowed to be examined unless he has served two years at sea within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

42. IN NAVIGATION, &c.—He must write a legible hand, and understand the first five rules of arithmetic, both simple and compound. He must be able to take a bearing by compass, and be conversant with the use of Mercator's chart, and be able to find, on either a "true" or "magnetic" chart,† the course to steer, and the distance from one given position to another; to find the ship's position on the chart from cross bearings of two objects; from two bearings of the same object, the course and distance run between taking the bearings being given; and the distance of the ship from the object at the time of taking the second bearing.

43. He must also pass an examination in the International Code of Signals.‡

44. IN SEAMANSHIP, &c.—He must possess a thorough knowledge of the rule of the road as regards both steamers and sailing vessels, their regulation lights, and fog and sound signals.§ He must be able to describe the signals of distress, and the signals to be made by ships wanting a pilot, and the liabilities and penalties incurred by the misuse of these signals;‖ also the use and management of the rocket apparatus in the event of his vessel being stranded. He must be able to mark and use the lead and log lines, to moor and unmoor a vessel, and to manage a ship's boat in heavy weather, &c., &c. He must also understand the construction, use, and action of the bulkhead sluices, the engine-room telegraph, &c., and to answer any other questions of a like nature appertaining to the duties of the Mate of a Home Trade Vessel which the Examiners may think proper to put to him.

45. A MASTER must be not less than 20 years of age, and have served five years at sea, of which one year must have been as First or Only Mate in the Home or Foreign Trade, during which service he must have been in possession of a Mate's Certificate for Home Trade Ships or of a First or Only Mate's Certificate for Foreign-going Ships. *Vide also para.* 19.

No candidate will be allowed to be examined unless he has served at sea two years within the last six years, and six months within the last three years immediately preceding the date of his application to be examined.

* *See* Appendix F.

† *See* Appendix D. The terms "true" and "magnetic" are used throughout the Regulations for the sake of brevity and convenience for indicating charts that have compasses engraved upon them, showing the "true" or "magnetic" point of the compass respectively.

‡ *See* Appendix A.

§ *See* Appendix B.

‖ *See* Appendix C.

Any cases not coming within the above conditions must be submitted for the special consideration of the Government before the candidate is allowed to be examined.

46. In Navigation, &c.—In addition to the qualifications required of a Mate of a Home Trade Ship, a Master will be required to find on a chart the course to steer by compass in order to counteract the effect of a given current, and to find the distance the ship will make good towards a given point in a certain time, and to *work out practically* the correction to apply to soundings taken at a given time and place, to compare with the depth marked on the chart,* &c. He will also be required to understand the use of the quadrant, to be able to observe with it, to read *off* and *on* the arc, and to find the index error by the horizon. He will also be required to find the latitude by a meridian altitude of the sun, and to give written answers (*vide supplementary viva voce test, page* 40) to certain practical questions on the subject of the deviation of the compass.†

47. In Seamanship, &c.—In addition to the qualifications required of a Mate of a Home Trade Ship, a Master must understand how to rig a sea anchor, and what means to apply to keep a steamer with machinery disabled out of the trough of the sea, &c. How to get a cast of the lead in heavy weather, &c. He will be examined as to his resources for the preservation of the crew and passengers in the event of wreck, and the steps to be taken if his vessel is disabled and drifting towards a lee shore, and will be required to answer any other questions appertaining to the management of Home Trade Vessels which the Examiner may think necessary to put to him.

Failure.

Re-examination in case of failure

48 In all cases of failure the Candidate must be examined *de novo*. If a Candidate fails in *Seamanship*, he will not be re-examined *until after a lapse* of six months. Whether the whole or part of this period must be served at sea must depend upon the subjects in Seamanship in which the Candidate failed, but what amount (if any) of sea service will be required will be left to the discretion of the Port Officer, subject, however, to revision by the Government should they see fit.

49. The Examiners in making out their Report on Form Exn. 14 should state what amount (if any) of further sea service the Candidate must perform, and they should also insert this information under Division H in Form Exn. 2.

50. If he fails three times in *Navigation* he will not be re-examined until after a lapse of three months from the date of the *last failure*.

Certificate of a lower grade.

51. If a Candidate has failed in his Examination, but the subjects in which he has failed are not included in the subjects required for a certificate of a lower grade, he may, if he desires it, receive a certificate of such lower grade.

52. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled, for re-examination for the higher grade of Certificate he will be required to pay a further full fee.

53. If a Candidate fails for bad spelling or writing, he will not be re-examined until after a lapse of at least three months.

Fees.

54. Candidates for examination, in making their application on Form Exn 2, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause, except failure to pass the colour tests, not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as

* *See* Appendix D.
† *See* Appendix E.

the case may be, they will be allowed to again present themselves for examination for a Certificate of the same grade without paying any further fee.

55. The fee for examination must be paid to the Port Officer. In any case in which a Candidate offers money to any other officer, and in any place but in the Port office, the Candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be again examined for twelve months. Fees to be paid by applicants for examination.

56. If a Candidate fail in his examination, *no part of the fee he has paid will be returned to him.* Fees to be paid by applicants for examinations. 133.

57. The fees are as follow :—

FOR "HOME TRADE SHIPS."

	Rs.
Mate	6
Master	12
For the renewal of any certificate ...	5

General Instructions to Examiners and Candidates.

58. All instruments necessary for use in the examinations are supplied by the Government. Instruments used in examinations.

59. Before commencing the examination, the tables or desks must be cleared of all scraps of paper or books that are not used in the examination, and care should be taken that the candidates do not bring into the examination room any book, paper, document or memoranda of any description whatever. No person whatever should be allowed in the room during the time of examination, but those whose duties require them to be present. Prohibited books and papers.

60 No instructors will be allowed on the premises.

61. Candidates will under no pretence whatever be allowed to leave the premises while the examination is proceeding. If a candidate has occasion to visit the retiring room, he will only be allowed to do so on the completion of the paper on which he may be engaged, when he will be required to enter in a book kept for the purpose the exact times of his leaving and returning to the examination room. When only a few candidates are under examination, two persons will not be allowed to leave the room at the same time. Candidates not to leave premises during examination.

62. Candidates should be so placed as to prevent one copying from the other, and no communication whatever between the Candidates should be allowed. Position of Candidates at examination

63. If any blotting paper is allowed, it should be black; and when the first examination paper is issued, each Candidate should be furnished with a piece, which must be returned to the Examiner upon the completion of the last paper. Blotting paper.

64. The examination papers should be issued to the Candidates in half sheets only, and one at a time. This will prevent a Candidate from spreading out the sheets on the table in an apparently careless manner, but so as to enable his nearest neighbour to look over and copy, or examine the problems It will also enable the Examiner to look over and report upon the work on one half sheet, while the Candidate is at work upon another, and so on. When the errors are not too numerous, or when they are not from ignorance of the subject, the incorrect problems may be returned to the Candidate for correction, but in no case should the errors be pointed out by the Examiner, neither should any marks be made on the correct work of the problem, which would at once indicate how far or to what extent the work is correct. Should the problems be returned to the Examiner the second time incorrect, this would be a failure; and as the time allowed is considered ample for working out the papers carefully, this rule is expected to be strictly observed. How examination papers should be issued.

65. When from the large number of the candidates it may be found impossible to look over the work on the day of examination during the office hours, an hour in the morning of the following day may be allotted for the purpose of correcting the problems, but In certain cases problems may be corrected on morning following examination day.

in no case should a Candidate have his problem returned to him for correction after he has made the second attempt.

Vivâ voce examination.

66. In the *vivâ voce* examination a reasonable time should be allowed for the Candidate to give his answers. No assistance should be given or leading question put.

Minor corrections.

67. All outstanding or minor corrections should appear in the margin of each problem paper; also on the chart papers Exn 9C and Exn. 9D; and unless all these corrections appear on the papers of the Candidate, they will not be considered complete.

Examination to commence with that for Second Mate.

68. In every case the examination, whether for Only Mate, First Mate, Master, is to commence with the problems for Second Mate.

Problems required as tests.

69. Examiners should bear in mind that the problems to be performed are required as tests, and for the purposes of an Examination, and not for sea-going or practical purposes alone.

70 The Candidates will be allowed to work out the various problems according to the method and the tables they have been accustomed to use.

Time allowed for Problems and Writings.

71. The rules as to the amount of time allowed are as follow:—

72 *Candidates for Home Trade Mate's Certificates* must complete the whole of their arithmetical and chart papers within *eight hours*, and Candidates for Home Trade Masters' Certificates within *ten hours*.

Additional time allowed in special

73. Punctually at the expiration of the prescribed time all the papers should be called up, whether completed or not, and if not completed the Candidate will be declared to have failed, unless the Examiner see fit to lengthen the period in any special case. If, however, the period is lengthened in any case, the special circumstances of that case, and the reasons for lengthening the period, together with the time allowed, must be reported to the Government by the Examiner, in the column for "remarks" on the Form Exn. 14. It should be noted that the periods prescribed in the foregoing paragraphs are not intended to include the time occupied by the *vivâ voce* part of the examination.

74. It is anticipated that but few of the Candidates for Certificates of Competency will require the whole of the time herein allowed for completing their examination in navigation; and ample time has been prescribed, so that Candidates may perform their work in a careful, clear and legible manner, and to the entire satisfaction of the Examiners.

Supplementary vivâ voce Examination on written Papers.

75. An impression prevails in regard to the examination of Masters and Mates, that so long as a Candidate can commit to paper correct answers to the various questions requiring written answers (*e. g., Forms Exn. 4a, Exn. 7, Exn. 9a, Exn. 9c, Exn. 32*, &c.), no matter how indicative the answers may be of their having been learnt off by rote *only*, the duty and responsibility of the local Examiners are at an end, and that they have no power or authority to reject a Candidate should his written answers be correct.

76. Lest, therefore, such an impression should prevail, the Government wish to point out that Candidates for Certificates of Competency are not only expected to give correct written answers, which may merely be learnt off by rote, but they are expected to possess an intelligent knowledge of the various subjects prescribed in the Regulations, particularly as regards the important subject of the Deviation of the Compass.

77. This result may be easily attained by the Examiner putting a few *viva voce* questions to the candidate as the papers are brought up for inspection, or at any subsequent time if more convenient. The oral questions (suggested by the printed questions and the answers given) should be such that the Examiner may satisfy himself that the candidate possesses a real knowledge of what he has written, and should be confined strictly to the subjects of the printed questions. Should the candidate then exhibit ignorance of the subjects, the Examiner (who is in a position to judge of the real knowledge the man before him posses-es) should deal with him at his discretion, notwithstanding that the candidate may have written all the answers correctly by rote.

78. When an Examiner finds it necessary to fail a Candidate in this *supplementary viva voce* test, a memorandum containing the particulars of the points on which the candidate was ignorant, *i.e*, *the identical questions and the identical answers given*, must in each case be attached to his examination papers, when forwarded in the usual course to the Port Officer, or the particulars may be set forth by the Examiner in the margins of the candidate's papers in red ink.

79. If the Candidate passes he will receive the Form Exn. 16, upon which the Government will issue the certificate to the Candidate, whose testimonials, &c., will be returned at the same time. Form Exn. 16. Completion of examination.

Special Notice to Candidates.

80. The attention of Candidates is specially called to the following Regulations:—

81. Candidates are required to appear at the examination-room punctually at the time appointed.

82. Candidates are prohibited from bringing into the examination-room books, paper, or memoranda of any kind whatever. The slightest infringement of this regulation will subject the offender to all the penalties of a failure, and he will not be allowed to present himself for re-examination for a period of three months.

83. In the event of any Candidate being detected in defacing, blotting, writing in, or otherwise injuring any book or books belonging to the Government, the papers of such Candidate will be detained until the book or books so defaced be replaced by him. He will not, however, be at liberty to remove the damaged book, which will still remain the property of the Government.

84. In the event of any Candidate being discovered referring to any book or memoranda, copying from another, or affording any assistance or giving any information to another, or communicating in any way with another, during the time of examination, he will subject himself to all the penalties of a failure, and he will not be allowed to be examined for a period of six months.

85. No Candidate will be allowed to work out his problems on a slate or on waste paper.

86. No Candidate will be permitted to leave the room until he has given up the paper on which he is engaged.

87. Any Candidate who may be guilty of insolence to the Examiner or of other misconduct will render himself liable to the postponement of his examination, or, if he has passed, to the detention of his certificate for such period as the local Government may direct.

General.

88. Certificates of competency will be made and issued in the forms hereunto annexed.

89. Every Certificate of Competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the Certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

90. No application from the holder of a certificate granted by the Government of Bombay to be examined for a certificate of the same legal value shall be entertained.

APPENDIX A.

EXAMINATION OF MASTERS AND MATES IN THE INTERNATIONAL CODE OF SIGNALS.

Instructions to Examiners.

The Government desire to direct the attention of the Examiners to the principal points connected with the International Code of Signals (which is to be treated as a subject in Navigation) as to which Candidates for Examination should be questioned in order to qualify for Certificates of Competency.

The Government would recommend to the Examiners a perusal of the *Report of the Signal Committee of* 1855 (which will be found at the commencement of the Signal Book), and also the *first few pages of the Book.* The information therein given will be found sufficient to make the Examiners theoretically acquainted with the characteristics of the Code, and the advantages it claims to possess over other Codes, and will enable them to appreciate and urge upon Candidates for Examination the facilities which this System of Signalling affords for easy and rapid communication.

The "comprehensiveness" and "distinctness" of the International Code are its chief recommendations.

The form of the Hoist generally indicates the nature of the Signal made, so that an observer can at sight understand the character of the Signal he sees flying.

The annexed plate gives examples which illustrate this.

The Examinations should tend to elicit a knowledge of the distinctive features of the Code above alluded to.

With this object the Examiners should make the 2, 3, and 4 Flag Signals on the Frame board which is furnished for the purpose (*always taking care first to show the Ensign and the Code Pennant at the Gaff*),* questioning the Candidates as to the distinguishing Forms of the respective Hoists, *(see Plate annexed)*; which will be indicated according as a Burgee, or a Pennant, or a Square Flag, is uppermost.

The Candidate ought to know how to find in the Signal Book the communication or the inquiry he desires to make, and how to make the Signal. The Signal to be made should *invariably* be sought for by the Candidate in the Vocabulary and Index, Part II, and never in Part I

The Candidate ought to know how to interpret a Signal.

The Examiner should place a Signal on the Frame board, and vary the Signal by showing a 2 or 3 Flag Signal, or a "Geographical" or a "Vocabulary" Signal, or the name of a Merchant Ship or a Ship of War.

The two latter signals would not of course be found in the Signal Book. The Candidate ought to point them out in the *Code List of Ships.*

A Candidate ought to be able to read off a Signal at sight, so far as to name the Flags composing the Hoist.

He ought to know the use of the Code Pennant, and of the Pennants C. and D., "Yes" and "No."

The Candidate should be practised in the use of the Spelling Table, by being made to spell his own name, or some word not to the Vocabulary of the Code.

A knowledge of the Distant Signals should be required of the Candidate, their object and the mode of signalling by the Distant Code, which will be found at the end of the Signal Book.

For this purpose two Black Balls, two Black Square Flags, and two Black Pennants will be furnished with the Frame board, and the Candidate should be required to make one or two Distant Signals, and to read off one or two made by the Examiners.

The Ball being the distinguishing symbol of the Distant Signal, any Pennants or Flags of the Code may be employed in conjunction with it, irrespective of colour. The Black Pennants and Flags are merely sent as showing best in the light background of the Frame board.

The Examiners should be careful to ascertain that the Candidate possesses a knowledge of the Distress Signals which came into operation November 1st, 1873.

Semaphores.

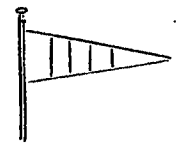
A plate at the end of the Signal Book explains the method by which the arms of the Semaphore are made to represent by their position (up, down, or horizontal) the three symbols used for Distant Signalling, viz., a Flag, a Ball, or a Pennant. Before making Signals with the Semaphore, the Black Disc with the white rim should be placed on the top of the Semaphore Mast, as it properly forms a part of the Mast itself.

The International Code is used on board Her Majesty's Ships, and it has been adopted by all the principal maritime powers for their Imperial as well as for their Mercantile Navies.

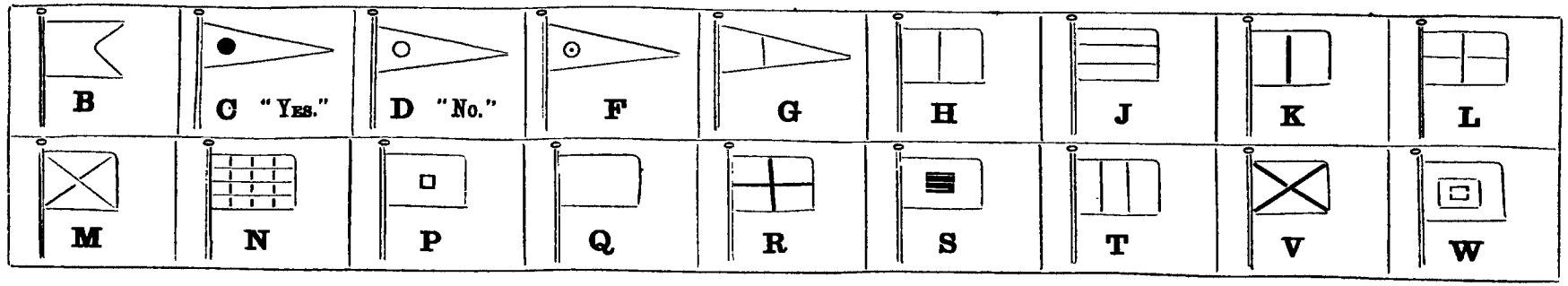
Note.—The International Code of Signals, with the Code List, is prepared by the Registrar-General of Shipping and Seamen, and may be had of the Publishers, Messrs. Spottiswoode & Co.,

* The object of this is, of course, to distinguish the Signals from those of another Code.

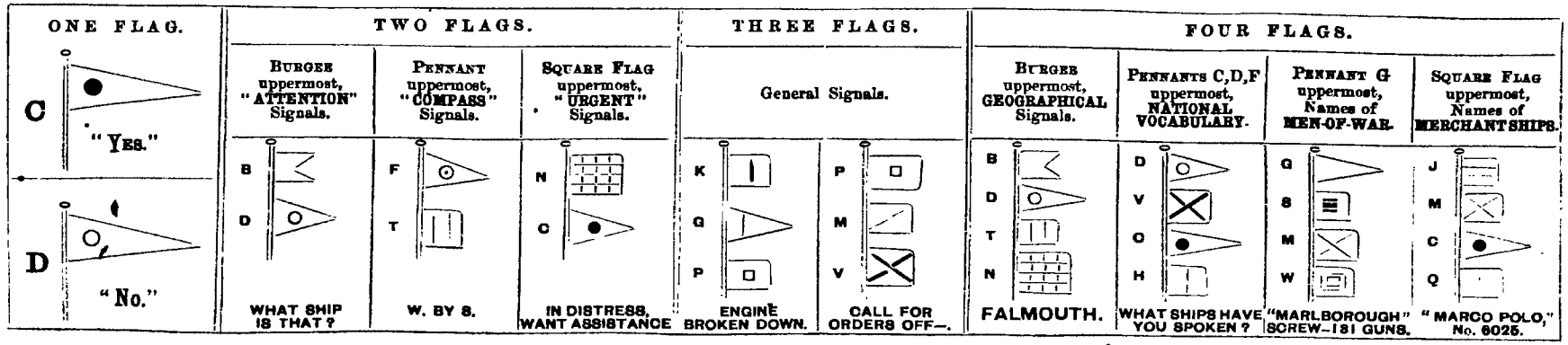
FLAGS OF THE INTERNATIONAL CODE OF SIGNAL

"CODE SIGNAL" AND  "ANSWERING PENNANT."

N.B.—When used as the "Code Signal," this Pennant is to be hoisted under the "Ensign;" when used as the "Answering Pennant," where best seen.



The following examples will serve to illustrate how the *form of a Hoist* will usually denote the *nature of the Signal* made :—



54, Gracechurch Street, London, and the principal Booksellers at the various ports

The Official Mercantile Navy List and Maritime Directory published for the use of Merchants, Shipowners, Shipbrokers, and others, may be obtained in like manner; price 12*s*.

APPENDIX B.

REGULATIONS RESPECTING LIGHTS AND FOG SIGNALS AND STEERING AND SAILING RULES ISSUED BY THE BOARD OF TRADE.

Notice.

The Board of Trade have had their attention drawn to the necessity of a more strict examination of applicants for Certificates of Competency in their knowledge of the regulations for preventing collisions at sea.

In order that the rule of the road at sea may be better understood, and that a uniform system of examination may prevail, the Board of Trade have issued the following catechism.

This catechism has received the approval of the Trinity House and Admiralty in England, and of the Council of the Admiralty of France.

The Board of Trade attach very great importance to a thorough knowledge of the steering and sailing rules on the part of every applicant for a Certificate of Competency, and a thorough examination on the part of the Examiners.

All applicants for examination, whether for certificates as masters or mates, are to be examined as to their knowledge of the steering and sailing rules each time they present themselves for examination.

Questions suggested by the following heads of examination are to be asked in addition to, and are not to supersede, any other questions proper and necessary to be asked by the Examiner.

The following questions need not be adhered to literally by the Examiner, and are not all to be asked; but the substance of the leading questions should be asked, and all that are asked should be satisfactorily answered, before an applicant is reported to have passed his examination. The Examiner should make such a selection of the questions as each case appears to him to require.

Thomas Gray,

Board of Trade, *Assistant Secretary.*
Marine Department.

HEADS OF EXAMINATION IN REGULATIONS RESPECTING LIGHTS AND FOG SIGNALS AND IN THE STEERING AND SAILING RULES.

1. What light or lights are required by the regulations to be exhibited by sailing vessels at anchor?

One light only, viz., a white light.

2. What light or lights are required by the regulations to be exhibited by steam-ships at anchor?

The same as for sailing vessels

3. Where is the anchor light to be exhibited?

Where it can best be seen. It must of course be placed where there is the least possible chance of obstruction from spars, ropes, &c., &c.

4. To what height may the anchor light be hoisted?

It may be exhibited at any height where it can best be seen, not exceeding 20 feet above the deck.

5. What is the description of the lantern containing the anchor light required by the regulations?

A globular lantern of not less than eight inches in diameter.

6. In what direction or directions must the anchor light show?

It must show a clear, uniform, and unbroken light, visible all round the horizon.

7. At what distance must it be visible?

At least one mile.

8. What is the number of lights required by the regulations to be carried by sailing ships when under weigh at night?

Two side-lights, and to have in readiness a white light or a flare-up light to show from their stern to any vessel overtaking them.

9. Of what colour are these lights, and how are they to be placed on board the ship?

A green light on the starboard side, and a red light on the port side.

10. What description of light must be shown from the sides of sailing vessels under weigh; and over how many points of the compass, and in what directions, and how far, are they required to show.

Each light must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass;

so fixed as to throw the light from right ahead to two points abaft the beam on the starboard and port sides respectively; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

11. What lights are they to carry when being towed at night?

The same.

12. Are the side-lights required to be fitted with screens; and if so, of what length, and how?

Yes, on the inboard side; at least three feet in length, measuring forward from the light. They are to be so fitted as to prevent the coloured lights from being seen across the bows.

13. What is the number of lights required by the regulations to be carried by steam-ships when under steam at night?

Three lights, and to have in readiness a white light or flare-up light to show from their stern to any vessel overtaking them.

14. Of what colour are these lights, and how are they to be placed on board the ship?

A white light on or in front of the foremast at a height above the hull of not less than 20 feet; and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth. A green light on the starboard side, and a red one on the port side.

15. Over how many points of the compass, in what direction, and how far, is the foremast-head light of a steamer required to show?

Over 20 points, viz., from right ahead to two points abaft the beam on both sides. It must be of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

16. Are the side-lights required to be fitted with screens; and if so, of what length?

The green and red lights are to be fitted with screens on the inboard side, extending at least three feet forward from the light, as in the case of sailing vessels.

17 Over how many points of the compass, in what directions, and how far, are the coloured side lights of steamers required to show?

The side-lights must be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the compass, on each side of the ship, *i.e.*, from right ahead to two points abaft the beam on the starboard and port sides respectively, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles.

18. What description of lights are steamers required by the regulations to carry when they are not under steam, but under sail only?

Side-lights only, the same as sailing vessels.

19. What exceptional lights are to be carried by small sailing vessels in certain cases?

Whenever, as in the case of small vessels during bad weather, the green and red side lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessel, ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

20. What description of lights are pilot vessels required to carry when on their stations on pilotage duty?

A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

21. What description of lights are pilot vessels required to carry when not on their station on pilotage duty?

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

22. What lights are open boats and fishing vessels of less than 20 tons net registered required to carry when under way and not actually engaged in fishing.

Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

23. What lights are fishing vessels and fishing boats of 20 tons net register, or upwards, required to carry when under way and not actually engaged in fishing?

They must carry similar lights to those of other ships when under way.

24. What lights are steam trawlers of 20 tons gross register, or upwards, whilst actually engaged in trawling, and not being stationary, required to carry?

All steam-vessels engaged in trawling must carry either one of the two following arrangements of lights, whichever of the two may be the more convenient:—

(*a*) The usual green and red side-lights, and foremast head light, similar to those carried by other steamships; or

(*b*) They must carry on or in front of the foremast head, and in the same position as the white light which other steamships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side; such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: and (2) a white light in a gobular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform, and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet, nor more than 12 feet.

25. What lights are sailing trawlers whilst actually engaged in trawling, and not being stationary, required to carry.

All sailing vessels, of whatever tonnage, whilst engaged in trawling, must carry either one of the three following arrangements of lights, whichever of the three, (*a*), (*b*), or (*c*), may be the most convenient:—

(*a*) They may carry the green and red side-lights similar to those of other sailing ships; or

(*b*) They may carry on or in front of the foremast head a lanthorn having a green glass on the starbord side and a red glads on the port side, so constructed, fitted, and arranges that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft the beam on the port side; and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light all round the horizon; the lanthorn containing such white light shall be carried lower than the lanthorn showing the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet; or

(*c*) They may carry a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed at to show a clear, uniform and unbroken light all round the horizon, and visible on a dark night, with a clear atmosphere, for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by, another ship or vessel in sufficient time to prevent collision.

What lights are vessels whilst actually engaged in drift net equired to carry?

essels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of the vessel shall be not less than 5 feet and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night, with a clear atmosphere, for a distance of not less than 3 miles.

27. What lights are vessels whilst actually engaged in line fishing required to carry?

A vessel engaged in line fishing is required to carry the same lights as a vessel engaged in drift net fishing.

28. If a vessel, when fishing, becomes stationary in consequence of her gear getting fast to a rock or other ostruction, what signal must she make?

She must show the same light, and if a fog, mist, or falling snow prevail, she must make the same fog signal, as if she were at anchor.

29. What lights are fishing vessels and open boats required to exhibit when at anchor?

Between sunset and sunrise they must exhibit a white light, visible all round the horizon at a distance of at least one mile, the same as any other vessel.

30. What sound signals are fishing vessels required to make whilst engaged in fishing in thick weather?

In fog, mist, or falling snow, a drift net vessel attached to her nets, and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

31. May fishing vessels and open boats use flare-up lights, and if so, at what part, or parts, of the vessel should they be exhibited?

Yes. Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

32. Do these regulations referring specially to fishing vessels and boats apply to foreign vessels, and to all parts of the world?

No, with the exception of the *first paragraph* of Article 10 of the regulations, they apply only to British vessels and boats when in the sea off the coast of Europe lying north of Cape Finisterre.

33. What lights are steam-ships required to carry when towing other ships?

A steam-ship, when towing another ship, shall, in addition to her side lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light which other steam-ships are required to carry.

34. What light is a ship which is being overtaken by another required to show?

A ship which is being overtaken by another shall show from her stern to such last mentioned ship a white light or a flare-up light.

35. Describe the lights and the day signals that vessels employed in laying or picking up a telegraph cable are required to carry.

A ship, whether a steam-ship or a sailing-ship employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line over one another, not less than six feet apart; the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than her foremast head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

36. Describe the lights and the day signals that vessels which from any cause are not under command are required to carry.

A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over than other, not less than three feet apart, and of such a charater as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles; and shall by day carry in a vertical line, one over the other, not less than three feet apart, in front of but not lower than her foremast head, three black balls or shapes, each two feet in diameter.

37. Are the above-mentioned ships to carry side-lights?

The above ships, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

38. What are the previous mentioned shapes and lights intended to indicate to approaching ships?

These shapes and lights are to be taken by approaching ships as signals that the ship using them is not under command, and cannot therefore get out of the way.

39. Do these rules prevent squadrons and convoys from carrying special lights?

No, Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war, or for ships sailing under convoy.

40. What sound signals are steam-ships and sailing ships required by the regulations to be provided with?

A steam-ship shall be provided with a steam whistle or other efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by a bellows or other mechanical means, and also with

an efficient bell. A sailing ship shall be provided with a similar fog-horn and bell.

41. When are these signals to be used?

In fog, mist, or falling snow, whether by day or night.

42. What sound signal is to be made by steam-ships and sailing ships when not under way?

A steam-ship and a sailing ship when not under way shall, at intervals of not more than two minutes, ring the bell.

43. What sound signal is required to be made by a steam-ship when under way?

A steam-ship under way shall make with her steam whistle, or other steam sound signal, at intervals of not more than two minutes a prolonged blast.

44. What sound signals are required to be made by sailing ships when under way?

A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

45. Do the regulations require ships to take any other precaution during thick weather?

Yes. Art. 13 says every ship, whether a sailing ship or steam-ship, shall, in a fog, mist, or falling snow, go at a moderate speed.

46. Is it optional for a steam-ship to make any other signals with her steam whistle?

Yes; but only to vessels in sight, *i.e.*, not to vessels which are so obscured by fog, mist, or falling snow that they cannot be seen, though their whistles may be heard.

Art. 19 provides that in taking any course authorised or required by the regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz:—

One short blast to mean "I am directing my course to starboard."

Two short blasts to mean "I am directing my course to port:"

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

47. What precaution is to be taken by steamers approaching another vessel?

If there is risk of collision, the steamer is to slacken speed, or, if necessary, stop and reverse.

48. If you see two white lights in a vertical line one over the other, what do they denote as regards the vessel carrying them?

They denote the presence of a steamer towing with her side lights not within sight on account of distance, fog, &c.; or a vessel end on to me engaged in drift net fishing, or in line fishing or it may be a steam trawler end on, or within two points of being end on, to me.

49. If you see a green, or a red, light with a white light below, what do they denote?

They denote the presence of either a sailing, or a steam, vessel engaged in trawling.

50. If you see both the green and red lights with a white light below them, what do they denote?

They denote the presence of a sailing trawler coming end on to me.

51. If you see a white light alone, what does it denote as regards the ship carrying it?

It denotes the presence of a vessel or boat at anchor; or a pilot vessel on her station; or the mast-head light of a vessel, under steam, with her side-lights not within sight on account of distance fog, &c.; or a fishing vessel stationary through her gear getting fast to some obstruction, or a sailing trawler engaged in trawling (1) under one arrangement of lights heading so that her side-lights are obscured, (2) under another arrangement from the red pyrotechnic light not having been exhibited, or it may be a light shown from the stern of a vessel which is being overtaken.

52. If you see a green or a red light without a white light, or both a green and a red light without a white light, is the vessel carrying the light or lights seen, a vessel under steam or a vessel under sail?

A vessel under sail?

53. How do you know?

Because there is no white mast-head light

54 If you see a white light over a coloured light, is the vessel a vessel under sail or a vessel under steam?

A vessel under steam. The mast-head light denotes that the vessel is under steam.

[The Examiner will then take one model of a vessel, which he will place on the table, and call it A. He will then take the mast or stand with a white and red ball on it and place it at the other end of the table and call it B.

The Examiner should be careful that the model of one vessel only is used when the questions numbered 55 to 60 are asked.]

55. A is a steamer going north, seeing a white light and red light right ahead at B. Are A and the vessel B showing the two lights meeting end on or nearly end on, or is B passing A, or is B crossing the path of A, and in what direction, and how do you know?

Passing to port, because if I see a red light ahead, I know that the head of the vessel carrying that red light must be pointing away

in some direction to my own port or left hand. The ship showing the red light has her port or left side more or less open to A.

66. If A is going north, within what points of the compass must the vessel B showing the white and red lights be steering?

B must be going from a little W. of S. to W. N.-W.

67. How do you know this?

Because the screens being properly fitted, I could not see the red light of B at all with the vessel's head in any other direction.

68. A is a steamer going north, and seeing a white and green light ahead. Are A and B meeting, or is B passing A, or is B crossing the course of A, and in what direction; and how do you know?

B is passing to starboard of A, because if I see a green light ahead, I know that the head of the vessel carrying that green light must be pointing away in some direction to my starboard or right hand. The ship showing the green light has her right or starboard side more or less open to me.

69. As A is going north, within what points of the compass must the vessel showing the white and green lights be steering?

B must be going from a little E. of South to E.N.E.

60. How do you know?

Because the screens being properly fitted, I cannot see the green light at all with the vessel's head in any other direction.

61. If a steamer A sees the *three* lights of another steamer B ahead or nearly ahead, are the two steamers meeting, passing, or crossing?

Meeting end on, or nearly end on.

62. Do the regulations expressly require the course of a ship to be altered to starboard in any case, and if so, when?

Yes; in the case of two steamers meeting end on, or nearly end on.

63. Do they expressly require the course of a ship to be altered to starboard in any other case; and if so, in what other?

No. It is not in any other case expressly required by the regulations.

[The Examiner should see that the candidate puts the models in the positions indicated by the question 64, and following.]

64. If a steamer A sees another steamer's red light B on her own starboard side, are the steamers meeting, passing, or crossing; and how do you know?

Crossing, because the red light of one is opposed to the green light of the other; and whenever a green light is opposed to a red light or a red light to a green light, the ships carrying the lights are, crossing ships.

65. Is A to stand on; and if not, why not?

A has the other vessel B on her own starboard side. A knows she is crossing the course of B, because she sees the red light of B on her (A's) own starboard side. A also knows she must get out of the way of B, because Article 16 expressly requires that the steamer that has the other on her own starboard side shall keep out of the way of the other.

66. Is A to starboard or to port in such a case?

A must do what is right so as to get herself out of the way of B: it is generally preferable to pass under a ship's stern rather than attempt to cross her bows, but it depends entirely on the position and relative speed of the two ships, and therefore the regulations wisely leave the giving way ship to get out of the way in any manner that may be most desirable, so always that she does get out of the way.

67. If A gets into collision by porting, will it be because she is acting on any rule?

No; the rule does not require her either to port or to star board If she ports, and gets into collision by porting, it is not the fault of any rule.

68. If a steamer A sees the green light of another steamer B on her own (A's own) port bow, are the two steamers meeting, passing, or crossing; and how do you know?

Crossing, because the green light of one ship is shown to the red light of the other.

69. What is A to do, and why?

By the rule contained in Article 22 of the Regulations, A is required to keep her course, subject only to the qualification that due regard must be had to all dangers of navigation; and that due regard must also be had to any special circumstances which may exist in any particular case rendering a departure from that rule necessary in order to avoid immediate danger. The crossing ship B on A's port side must get out of the way of A, because A is on B's starboard side.

70 A, a steamer, sees the green light of another steamer, B, a point on her A's port bow. Is there any regulation requiring A to port in such a case; and if so, where is it to be found?

There is not any.

71. Are steam-ships to get out of the way of sailing ships?

If a steamer and a sailing ship are proceeding in such direction as to involve risk of collision, the steamer is to get out of the way of the sailing ship, unless the sailing ship is overtaking the steamer.

72. What is to be done by A, whether a steamer or a sailing ship, if overtaking B?

A is to keep out of the way of B.

73. When by the rules one of two ships is required to keep out of the way of the other, what is the other to do?

To keep her course. This is absolutely necessary to enable the commander of the ship required by the regulations to keep out of the way, to act with decision and promptitude, which he cannot possibly, unless he knows what the other vessel is going to do.

74. Is there any qualification or exception to this?

Yes. Due regard must be had to all dangers of navigation, and to any special circumstances which may exist in any particular case, and require a departure from the regulations to avoid immediate danger.

75. Is there any general direction in the steering and sailing rules; and if so, what is it?

Yes, it is this: that nothing in the rules shall exonerate any ship, or the owner, master, or crew thereof, from the consequences of any neglect to carry lights, or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

76. Can you repeat article (———) of the regulations, I refer to the article containing the rule for (———)?

[The Examiner should repeat this question, naming a different article each time.]

77. What does the Act of Parliament provide as to the obligation of owners and masters in obeying the regulations respecting lights, fog signals, and steering and sailing?

Section 27 of "the Merchant Shipping Act Amendment Act, 1862," provides that owners and masters shall be bound to obey the regulations, and it also provides that in case of wilful default by the master or owner he shall be deemed to be guilty of a misdemeanor for each infringement.

78. What do breaches of the regulations imply?

If an accident happens through non-observance of the regulations, it implies wilful default on the part of the person in charge of the deck at the time, unless it is shown to the satisfaction of the court hearing the case that the special circumstances of the case rendered a departure from the rules necessary.

79. If collision ensues from a breach of the regulations, who is to be deemed in fault for the collision?

The person, by whom the regulations are infringed, unless the court hearing the case decides to the contrary.

80. Is there any special rule for steam-ships navigating narrow channels?

In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which is on the starboard side of such ship.

81. Do the regulations apply to sea-going ships in harbours and in rivers?

Yes; unless there is any rule to the contrary made by a competent authority.

82. Do they apply to British ships only?

No, to foreign ships as well, with the exception of paragraphs (*a*), (*b*), (*c*), (*d*), (*e*), (*f*) and (*g*), of Article 10, which apply only to British fishing vessels.

83. Do you know where the present regulations are to be found?

Yes, in the Orders in Council of the 11th August 1884, the 30th December 1884, and 24th June 1885. Copies are given away on application to the Board of Trade.

84. Is one ship bound to assist another in case of collision?

Yes.

85. What is the penalty for default?

If the master or person in charge of the ship fails to render assistance without reasonable excuse, the collision is, in absence of proof to the contrary, to be deemed to be caused by his wrongful act, neglect, or default.

86. Is there any other penalty attached to not rendering assistance?

Yes. If it is afterwards proved that he did not render assistance, his certificate may be cancelled or suspended by the court investigating the case.

87. Is it not expected that you should understand the regulations before you take charge of the deck of a ship?

It is.

88. Why?

If I do not understand them and am guilty of default, the consequences will be very serious to me.

89. What would be a serious offence?

To cause a collision by porting the helm or doing anything not required by the regulations and without due consideration.

REGULATIONS FOR PREVENTING COLLISIONS AT SEA, ORDER IN COUNCIL OF 11TH AUGUST 1884.

PRELIMINARY.

Art. 1. In the following rules every steam-ship which is under sail and not under steam is to be considered a sailing ship; and every steam-ship which is under steam, whether under sail or not, is to be considered a ship under steam.

RULES CONCERNING LIGHTS.

Art. 2. The lights mentioned in the following Articles, numbered 3, 4, 5, 6, 7, 8, 9, 10 and 11, and no others, shall be carried in all weathers, from sunset to sunrise.

Art. 3. A sea-going steam-ship when under way shall carry—

(*a*) On or in front of the foremast, at a height above the hull of not less than 20 feet, and if the breadth of the ship exceeds 20 feet, then at a height above the hull not less than such breadth, a bright white light, so constructed as to show an uniform and unbroken light over an arc of the horizon, of 20 points of the compass, so fixed as to throw the light 10 points on each side of the ship, viz. from right ahead to two points abaft the beam on either side; and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least five miles.

(*b*) On the starboard side, a green light so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*c*) On the part side, a red light, so constructed as to show an uniform and unbroken light over an arc of the horizon of 10 points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side, and of such a character as to be visible on a dark night, with a clear atmosphere, at a distance of at least two miles.

(*d*) The said green and red side-lights shall be fitted with inboard screens projecting at least three feet forward from the light; so as to prevent these lights from being seen across the bow.

Art. 4. A steam-ship, when towing another ship, shall in addition to her side-lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, so as to distinguish her from other steam-ships. Each of these lights shall be of the same construction and character, and shall be carried in the same position, as the white light which other steam-ships are required to carry.

Art. 5. (*a*) A ship, whether a steam-ship or a sailing ship, which from any accident is not under command, shall at night carry, in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three red lights in globular lanterns, each not less than 10 inches in diameter, in a vertical line one over the other, not less than three feet apart, and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles; and shall by day carry in a vertical line one over the other, not less than three feet apart, in front of, but not lower than, her foremast head, three black balls or shapes, each two feet in diameter.

(*b*) A ship, whether a steam-ship or a sailing ship, employed in laying or in picking up a telegraph cable, shall at night carry in the same position as the white light which steam-ships are required to carry, and, if a steam-ship, in place of that light, three lights in globular laterns, each not less than 10 inches in diameter, in a vertical line one over another, not less than six feet apart; the highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character that the red lights shall be visible at the same distance as the white light. By day she shall carry in a vertical line one over the other, not less than six feet apart, in front of, but not lower than, her foremast head, three shapes not less than two feet in diameter, of which the top and bottom shall be globular in shape and red in colour, and the middle one diamond in shape and white.

(*c*) The ships referred to in this Article, when not making any way through the water, shall not carry the side-lights, but when making way shall carry them.

(*d*) The lights and shapes required to be shown by this Article are to be taken by other ships as signals that the ship showing them is not under command, and cannot therefore get out of the way. The signals to be made by ships in distress and requiring assistance are contained in Article 27.

Art. 6. A sailing ship under way, or being towed, shall carry the same lights as are provided by Article 3 for a steam-ship under way, with the exception of the white light, which she shall never carry.

Art. 7. Whenever, as in the case of small vessels during bad weather, the green and red side-lights cannot be fixed, these lights shall be kept on deck, on their respective sides of the vessels, ready for use: and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent a collision, in such a manner as to make them most visible, and so that the green light shall not be seen on the port side, nor the red light on the starboard side.

To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the colour of the light they respectively contain, and shall be provided with proper screens.

Art. 8. A ship, whether a steam-ship or a sailing ship, when at anchor, shall carry, where it can best be seen, but at a height not exceeding 20 feet above the hull, a white light, in a globular lantern of not less than eight inches in diameter, and so constructed as to show a clear, uniform and unbroken light visible all round the horizon at a distance of at least one mile.

Art. 9. A pilot vessel, when engaged on her station on pilotage duty, shall not carry the lights required for other vessels, but shall

respect to additional station and signal lights for two or more ships of war or for ships sailing under convoy.

Art. 27. When a ship is in distress, and requires assistance from other ships or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, that is to say—

In the day-time—

1. A gun fired at intervals of about a minute;
2. The International Code signals of distress indicated by N. C.
3. The distant signal, consisting of square flag, having either above or below it a ball or anything resembling a ball.

At night—

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, throwing stars of any colour or description, fired one at a time, at short intervals.

ORDERS IN COUNCIL OF 30TH DECEMBER 1884 AND 24TH JUNE 1885.

ALTERNATIVE LIGHTS FOR TRAWLERS WHEN ENGAGED IN TRAWLING, HAVING THEIR TRAWLS IN THE WATER AND NOT BEING STATIONARY.

1884.—PART I.—STEAM-VESSELS OF 20 TONS GROSS REGISTER TONNAGE OR UPWARDS.

(1) On or in front of the foremast head and in the same position as the white light which other steam-ships are required to carry, a lanthorn showing a white light ahead, a green light on the starboard side, and a red light on the port side, such lanthorn shall be so constructed, fitted, and arranged as to show an uniform and unbroken white light over an arc of the horizon of four points of the compass, an uniform and unbroken green light over an arc of the horizon of 10 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 10 points of the compass, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the ship, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side: (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than the lanthorn showing the green, white, and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet nor more than 12 feet.

1884.—PART II.—SAILING-VESSELS OF 20 TONS NET REGISTER TONNAGE OR UPWARDS.

(1) On or in front of the foremast head a lanthorn having a green glass on the starboard side and a red glass on the port side, so constructed, fitted, and arranged that the red and green do not converge, and so as to show an uniform and unbroken green light over an arc of the horizon of 12 points of the compass, and an uniform and unbroken red light over an arc of the horizon of 12 points of the compass, and it shall be so fixed as to show the green light from right ahead to four points abaft the beam on the starboard side, and the red light from right ahead to four points abaft the beam on the port side; and (2) a white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, the lanthorn containing such white light shall be carried lower than lanthorn the green and red lights as aforesaid, so, however, that the vertical distance between them shall not be less than 6 feet and not more than 12 feet.

1885. SAILING TRAWLERS OF ANY TONNAGE.

As regards sailing vessels engaged in trawling, such vessels having their trawls in the water and not being stationary in consequence of their gear getting fast to a rock or other obstruction, if they do not carry and show the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in Part 2 of the Schedule to the said recited Order in Council of the 30th of December 1884, shall carry and show in lieu of the lights required by Article 6 of the Regulations aforesaid, or the other lights of the description set forth in paragraph 2 of the Schedule to the said recited Order, other lights as follows, that is to say:

A white light in a globular lanthorn of not less than eight inches in diameter, and so constructed as to show a clear uniform and unbroken light all round the horizon, and visible on a dark night

with a clear atmosphere for a distance of at least 2 miles; and also a sufficient supply of red pyrotechnic lights which shall each burn for at least 30 seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the red pyrotechnic lights shall be shown on approaching, or on being approached by another ship or vessel in sufficient time to prevent collision.

AIDS TO MEMORY IN FOUR VERSES, BY THOMAS GRAY.

1. *Two Steam-ships meeting.*

When both side lights you see ahead—
Port your helm and show your RED.

2. *Two Steam-ships passing.*

GREEN to GREEN—or, RED to RED—
Perfect safety—Go ahead!

3. *Two Steam-ships crossing*

Note.—This is the position of greatest danger: there is nothing for it but good look-out, caution, and judgment.

If to your starboard RED appear,
It is your duty to keep clear;
To act as judgment says is proper:—
To Port—or Starboard—Back,—or, Stop her!

But when upon your Port is seen
A Steamer's Starboard Light of GREEN,
There's not so much for you to do,
For GREEN to Port keeps clear of you.

4. *All Ships must keep a good look-out, and Steam-ships must stop and go astern, if necessary.*

Both in safety and in doubt
Always keep a good look-out;
In danger, with no room to turn,
Ease her, stop her, go astern.

14*th October* 1867.

APPENDIX C.

DISTRESS AND PILOT SIGNALS.

M. S. Act 1873. The following sections, together with the schedules referred to therein, of the "Merchant Shipping Acts, Amendment Act, 1873," relate to Signals of Distress and Signals for Pilots. (*See also* "*Regulations for preventing Collisions at Sea. Article* 27.)

Signals of distress. 18. The signals specified in the first schedule to this Act shall be deemed to be signals of distress.

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals, except in the case of a vessel being in distress, shall be liable to pay compensation for any labour undertaken, risk incurred, or loss sustained in consequence of such signal having been supposed to be a signal of distress, and such compensation may, without prejudice to any other remedy, be recovered in the same manner in which salvage is recoverable.

Signals for pilots. 19. If a vessel requires the services of a pilot, the signals to be used and displayed shall be those specified in the second schedule to this A

Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals for any other purpose than that of summoning a pilot, or uses or causes or permits any person under his authority to use any other signal for a pilot, shall incur a penalty not exceeding twenty pounds.

Power to alter rules as to signals. 20. Her Majesty may from time to time by Order in Council repeal or alter the rules as to signals contained in the schedules to this Act or make new rules in addition thereto, or in substitution therefor, and any alterations in or additions to such rules made in manner aforesaid shall be of the same force as the rules in the said schedules.

SCHEDULES.

SCHEDULE I.—SIGNALS OF DISTRESS.

In the day time.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress in the daytime:—

1. A gun fired at intervals of about a minute;
2. The International Code signal of distress indicated by N C;
3. The distant signal, consisting of a square flag having either above or below it a ball, or anything resembling a ball.

carry a white light at the masthead, visible all round the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

A pilot vessel, when not engaged on her station on pilotage duty, shall carry lights similar to those of other ships.

Art 10. Open boats and fishing vessels of less than 20 tons net registered tonnage, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the coloured side-lights; but every such boat and vessel shall in lieu thereof have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching to, or being approached by another vessel, such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side, nor the red light on the starboard side.

The following portion of this article applies only to fishing vessels and boats when in the sea off the cost of Europe lying north of Cape Finisterre:—

(*a*) All fishing vessels and fishing boats of 20 tons not registered tonnage, or upwards, when under way and when not required by the following regulations in this article to carry and show the lights therein named, shall carry and show the same lights as other vessels under way.

(*b*) All vessels when engaged in fishing with drift nets shall exhibit two white lights from any part of the vessel where they can be best seen. Such lights shall be placed so that the vertical distance between them shall be not less than 6 feet and not more than 10 feet; and so that the horizontal distance between them measured in a line with the keel of th vessel shall be not less than five feet, and not more than 10 feet. The lower of these two lights shall be the more forward, and both of them shall be of such a character, and contained in lanterns of such construction as to show all round the horizon, on a dark night with a clear atmosphere, for a distance of not less than three miles.

(*c*) A vessel employed in line fishing with her lines out shall carry the same lights as a vessel when engaged in fishing with drift nets.

(*d*) If a vessel when fishing becomes stationary in consequence of her gear getting fast to a rock or other obstruction, she shall show the light and make the fog signal for a vessel at anchor.

(*e*) Fishing vessels and open boats may at any time use a flare-up in addition to the lights which they are by this article required to carry and show. All flare-up lights exhibited by a vessel when trawling, dredging, or fishing, with any kind of drag net shall be shown at the after part of the vessel, excepting that, if the vessel is hanging by the stern to her trawl, dredge, or drag net, they shall be exhibited from the bow.

(*f*) Every fishing vessel and every open boat when at anchor between sunset and sunrise shall exhibit a white light visible all round the horizon at a distance of at least one mile.

(*g*) In fog, mist, or falling snow, a drift net vessel attached to her nets and a vessel when trawling, dredging, or fishing with any kind of drag net, and a vessel employed in line fishing with her lines out, shall at intervals of not more than two minutes make a blast with her fog-horn and ring her bell alternately.

Art. 11. A ship which is being overtaken by another shall show from her stern to such last-mentioned ship a white light or a flare-up light.

Sound Signals for Fog, &c.

Art. 12. A steam-ship shall be provided with a steam whistle or other efficient steam sound signal, so placed that the sound may not be intercepted by any obstructions, and with an efficient fog-horn to be sounded by a bellows or other mechanical means, and also with an efficient bell.* A sailing ship shall be provided with a similar fog-horn and bell.

In fog, mist, or falling snow, whether by day or night, the signals described in this Article shall be used as follows; that is to say—

(*a*) A steam-ship under way shall make with her steam whistle or other steam sound signal, at intervals of not more than two minutes, a prolonged blast.

(*b*) A sailing ship under way shall make with her fog-horn, at intervals of not more than two minutes, when on the starboard tack one blast, when on the port tack two blasts in succession, and when with the wind abaft the beam three blasts in succession.

(*c*) A steam-ship and a sailing ship, when not under way, shall, at intervals of not more than two minutes, ring the bell.

Speed of Ships to be moderate in Fog, &c.

Art. 13. Every ship, whether a sailing ship or steam-ship, shall in a fog, mist, or falling snow, go at a moderate speed.

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* In all cases where the regulations require a bell to be used, a drum will be substituted on board Turkish vessels.

Steering and Sailing Rules.

Art. 14. When two sailing ships are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, viz.—

(*a*) A ship which is running free shall keep out of the way of a ship which is close-hauled.

(*b*) A ship which is close-hauled on the port tack shall keep out of the way of a ship which is close-hauled on the starboard tack.

(*c*) When both are running free with the wind on different sides, the ship which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free with the wind on the same side, the ship which is to windward shall keep out of the way of the ship which is to leeward.

(*e*) A ship which has the wind aft shall keep out of the way of the other ship.

Art. 15. If two ships under steam are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This article only applies to cases where ships are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two ships which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are, when each of the two ships is end on, or nearly end on, to the other; in other words, in cases in which, by day, each ship sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each ship is in such a position as to see both the side-lights of the other.

It does not apply, by day, to cases in which a ship sees another ahead crossing her own course; or by night, to cases where the red light of one ship is opposed to the red light of the other, or where the green light of one ship is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

Art. 16. If two ships under steam are crossing, so as to involve risk of collision, the ship which has the other on her own starboard side shall keep out of the way of the other.

Art. 17. If two ships, one of which is a sailing ship, and the other a steam-ship, are proceeding in such directions as to involve risk of collision, the steam-ship shall keep out of the way of the sailing ship.

Art. 18. Every steam-ship, when approaching another ship, so as to involve risk of collision, shall slacken her speed or stop and reverse, if necessary.

Art. 19. In taking any course authorised or required by these Regulations, a steam-ship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle, viz.—

One short blast to mean "I am directing my course to starboard."

Two short blasts to mean "I am directing my course to port."

Three short blasts to mean "I am going full speed astern."

The use of these signals is optional; but if they are used, the course of the ship must be in accordance with the signal made.

Art. 20. Notwithstanding anything contained in any preceding Article, every ship, whether a sailing ship or a steam-ship, overtaking any other shall keep out of the way of the overtaken ship.

Art 21. In narrow channels every steam-ship shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such ship.

Art. 22. Where by the above rules one of two ships is to keep out of the way, the other shall keep her course.

Art. 23. In obeying and construing these rules due regard shall be had to all dangers of navigation; and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

No Ship, under any circumstances, to neglect proper Precautions.

Art 24. Nothing in these rules shall exonerate any ship, or the owner, or master, or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

Reservation of Rules for Harbours and Inland Navigation.

Art. 25. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbour, river, or inland navigation.

Special Lights for Squadrons and Convoys.

Art. 26. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with

At night.—The following signals, numbered 1, 2 and 3, when used or displayed together or separately, shall be deemed to be signals of distress at night:

1. A gun fired at intervals of about a minute;
2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.);
3. Rockets or shells, of any colour or description, fired one at a time, at short intervals.

SCHEDULE II.—SIGNALS TO BE MADE BY SHIPS WANTING A PILOT.

In the day time.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot in the day time, viz:—

1. To be hoisted at the fore, the Jack or other national colour usually worn by merchant ships, having round it a white border, one-fifth of the breadth of the flag; or
2. The International Code pilotage signal indicated by P T.

At night.—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot at night, viz.—

1. The pyrotechnic light, commonly known as a blue light, every fifteen minutes; or
2. A bright white light, flashed or shown at short or frequent intervals, just above the bulwarks, for about a minute at a time.

APPENDIX D.

EXAMINATION IN CHART.

FOR ALL GRADES WHERE THE CHART IS USED (INCLUDING "HOME TRADE" CANDIDATES).

[The candidate will be required to work out the following questions on either a "true" or "magnetic" chart, * whichever may be handed to him by the Examiner; and also determine whether the chart is a "true" or "magnetic" one, and whether it is for the northern or southern, and eastern or western hemispheres.

1. Using deviation [card] [curve] † No. find the course to steer by compass from to ; also the distance.

Answer.—Compass course .
Distance .
Variation .
Deviation .

With the ship's head on the above-named compass course a [point] [light-house] bore by compass and bore by the same compass, find the ship's position.

Answer.—Latitude .
Longitude .

3. With the ship's head as above, a [point] [light-house] bore by compass , and after continuing on the same course miles, it bore , find the position of ship and her distance from at the time of taking the second bearing.

Answer.—Latitude .
Longitude .
Distance .

All the foregoing questions must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature .
Date .
Chart used .

ADDITIONAL FOR MASTERS (INCLUDING "HOME TRADE" CANDIDATES).

4. Find the course to steer by compass from to (*see* Question 1) to counteract the effect of a

* The terms "true" and "magnetic" are used for the sake of brevity, and convenience, for indicating charts that have compasses delineated upon them showing the "true" or "magnetic" points of the compass respectively.

† A candidate for a Master's Certificate is expected to use either a card of deviations, or a curve of deviations on a Napier's diagram, whichever the Examiner may think proper to put before him.

current which set at the rate of miles per hour, the ship making by log miles per hour; also the distance the ship would then make good in hours towards

Answer.—Compass course

Distance

5. On being off took a cast of the lead; required the correction to be applied to the depth obtained by the lead line before comparing it with the depth marked on the chart.

6. What do you understand the small numbers to indicate that you see placed about the chart, and at what time of tide?

7. What do the Roman numerals indicate that are occasionally seen near the coasts and in harbours?

8. How would you find, approximately, the time of high water at any place, the Admiralty tables not being at hand nor any other special tables available?

All the foregoing questions, and those on Form Exn. 9 C., must be answered, but this does not preclude the Examiner from putting any other questions of a practical character or which the local circumstances of the port may require.

Signature

Date

APPENDIX E.

DEVIATION OF THE COMPASS.

(For Masters of Home Trade Ships.)

[The Applicant must answer in writing, on paper gi the Examiner, all the following questions, nu answers to correspond with the numbers of the q

1. When taking a Meridian Altitude, how do you the sun is on the Meridian; or, in other words, noon?
2. How does the sun bear when on the meredian of in these latitudes (Home Trade Limits)?
3. What do you mean by deviation of the compass, a caused?
4. Having determined the deviation, how do you know, when it is easterly, and when westerly?
5. Supposing the sun when on the meridian bore by your compass ———— what would be the deviation of that Compass for the direction of the ship's head at the time, the variation given on the Chart being ————?
6. How could you find the deviation of your Compass when in port, or when sailing along a cost?
7. Name some suitable objects by which you could readily obtain the deviation of your Compass, when sailing along the coasts of the Channel you have been accustomed to use?
8. The bearing of two objects when in a line with each other was found on the Chart to be ———— magnetic; but when brought in a line on board they bore ———— by your Compass; required the deviation of your Compass for the direction of the ship's head at the time?
9. What means are there for checking the deviation of your Compass by night?
10. Supposing the North Star (*Polaris*) bore ———— by your Compass, what would be the deviation (approximately) of that Compass for the direction the ship's head at the time, supposing the variation given on the Chart to be ————?
11. Do you expect the deviation to change? if so, state under what circumstances?
12. What is meant by variation of the Compass, and what is the cause of it?

APPENDIX F.

INSTRUCTIONS TO EXAMINERS.

Examination in Colours.

Herewith are—

(*a*) A lanthorn having in it a lamp in which kerosine is to be burnt.

(*b*) A slide having ground glass in it.

(*c*) Nine slides, each having a coloured glass in it. The colours are as follow :—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1.
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

(*d*) Cards, five of each as follow :—

1. White
2. Black.
3. Red.
4. Pink.*
5. Green.
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (Cards.)

In conducting the examination by daylight the examiner should do it in three ways—

1. The cards should be mixed up. The examiner should then hold up each card separately, and ask the candidate to name the colour, and if the candidate does so without hesitation, he is to be regarded as having passed the day-light test.
2. If the candidate hesitates in any of his answers so as to raise a doubt in the mind of the examiner as to his ability to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap.
4. The result of the examination should be noted and recorded in each case.

Examination by Artificial light.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn; and, at least, 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked if it appears to him to have any colour, and if so, what colour ?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star* is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having "failed" if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c. ; or to name card No. 7 as red, green, or yellow ; or glass No. 2 as green blue, or yellow ; or glass No. 5 as red, pink, salmon, &c. ; or glass No. 7 as bright red or bright green ; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B.

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black, by daylight ; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown), he may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.

Government of Bengal.

By the Honourable the Lieutenant-Governor of B

Local Certificate of Competency

AS

MASTER.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of Master in the* _____ *service, I do hereby, in pursuance of Act No. I of* 1859 *of the Legislative Council of India, grant you this CERTIFICATE OF COMPETENCY.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

this _____ *day of* _____ 18___. *Under-Secy. to the Govt. of Bengal.*

(108)

No. of Certificate

Bearer _____

Date and Place of Birth _____

No. of Register Ticket _____

Signature _____

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at Calcutta on the _____ *day of* _____ 18___.

Registered.

Port Officer of Calcutta.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Local Certificate of Competency

AS

MATE.

To _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found duly qualified to fulfil the duties of* _____ *Mate in the* _____ *service, I do hereby, in pursuance of Act No. I of* 1859 *of the Legislative Council of India, grant you this CERTIFICATE OF COMPETENCY.*

By order of the Government of Bengal,

Given under my Hand and Seal,

this _____ day of _____ 18__.

Under-Secy. to the Govt. of Bengal.

No. of Certificate

Bearer _____

Date and Place of Birth _____

No. of Register Ticket _____

Signature _____

Any MASTER or MATE who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this certificate is required to transmit it forthwith to the Port Officer, Calcutta.

Issued at Calcutta on the _____ *day of* _____ 18___.

Registered,

Port Officer of Calcutta.

NOTICE.

Candidates applying to be examined for Certificates of Competency are hereby informed that no remuneration or gratuity whatever, either directly or indirectly, can be received by any Officer, Messenger, or Servant of the Government, except the lawful fees stated in the Regulations, which are to be paid to the Port Officer when the Candidate makes his application.

Any Officer, Messenger, or Servant of the Government accepting any present or gratuity is liable to summary dismissal, and any Candidate so offering money will be subject to the penalty mentioned in para. 16 of the Regulations relating to the examination of Masters, or para. 35 of those relating to the examination of Engineers and Engine-drivers as the case may be.

Every case in which an applicant has paid, or pays hereafter, any fee or gratuity to any Officer, Messenger, or Servant, on any pretence whatever, other than the prescribed fees for examination, should be reported to the Local Government.

W. B. BESTIC,

Under-Secy. to the Govt. of Bengal.

P. W. (Marine) Dept.

REGULATIONS

RELATING TO THE

EXAMINATION OF MASTERS OF INLAND STEAM-VESSELS.

Preliminary.

UNDER the provisions of the Inland Steam-Vessels Act, 1884, no inland steam-vessel having engines of eighty nominal horse-power or upwards is allowed to proceed on any voyage unless her master possesses a first class master's certificate granted under the Act, or a master's certificate granted under Act I of 1859 (*for the amendment of the law relating to merchant seamen*), or the Merchant Shipping Acts, 1854 to 1883, or a certificate to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869; and no such ship having engines of under eighty nominal horse-power is allowed to proceed on any voyage unless her master possesses a second class master's certificate granted under the Act, or a certificate of the higher grade of the nature referred to above:

Provided that a steam-vessel having engines of under eighty nominal horse-power shall be deemed to have complied with the law if she has as her master and engineer a person possessing both a second class master's certificate and an engine-driver's certificate granted under the Act.

Any person who having been engaged to serve as master of an inland steam-vessel proceeds on any voyage in that steam-vessel as master without being at the time entitled to and possessed of the certificate required under the Act, and any person who employs any person as such master without ascertaining that he is at the time entitled to, and possessed of, the certificate required under the Act, is liable to be punished with fine which may extend to *five hundred rupees*.

NOTIFICATION.

No. 27 Marine, dated Calcutta, the 31st January 1890.

UNDER the powers conferred upon him by section 29 of the Inland Steam-Vessels Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to masters of inland steam-vessels.

W. B BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates granted to persons who pass examinations.

1. *Certificates of Competency* will be granted to those persons who pass the requisite examinations, and otherwise comply with the requisite conditions. For this purpose arrangements have been made for holding examinations periodically at the port of Calcutta.

Examinations continued till all the candidates are examined.

2. The examinations will be held by the Port Officer and one or more other examiners to be appointed by the Government from time to time They will commence early in the forenoon, and will be continued from day to day until all the Candidates whose names appear upon the Port Officer's list on the day of examination are examined.

3. Candidates for examination must make their application upon the appropriate form (Exn. 2*b*), which must be filled up at the Port Office. The Exn 2*b* properly filled in, together with the candidates' testimonials and discharges, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials of character, conduct, and ability required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct on board ship for at least the twelve months of service immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. As such testimonials and discharges may have to be verified before the candidate can be examined, it is desirable that they should be handed in, together with the Forms Exn 2*b*, as early as possible.

Testimonials of Foreigners.

5. The testimonials of servitude of Foreigners and of British seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits; and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificates as to Age.

6. Should any doubt exist as to the age of a candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

7. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel. In the case of natives of India, who may not be able to speak English, their certificate shall be endorsed to the effect that they are valid only for vessels manned and officered entirely by Asiatics.

Colour Tests.

8. The Government have made the following arrangements for the examination of persons as to their ability to distinguish colours:—*

9. Examinations in Colour are open to any person serving or about to serve in the Mercantile Marine.

10. Any person, including the holders of Certificates of Competency, or persons about to apply for Certificates of Competency, if desirous of being examined *in Colours only*, must make application to the Port Officer on Form Exn. 2*a*, and pay a fee of one rupee.

11. He must on the appointed day attend for examination at the Examiner's Office; and if he passes he will receive a certificate to that effect.

12. If he fails it will be open to him to be examined again in Colours as often as he pleases on payment of the fee of one rupee at each fresh attempt.

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* *See* Apendix A.

13. The application of a *Candidate who is presenting himself for Examination for a Master's Certificate* must be made on Form Exn. 2*b*. Such examination will commence with the Colour test; and if the Candidate does not, at the time of making application, hold a Certificate of Competency of any grade, and should fail to distinguish correctly any one of the colours used in the test, he will not be allowed to proceed with the examination

14. The fee he has paid for Examination for a Certificate of Competency will include the fee for the Colour test, and, with the exception of one rupee, will in such event be returned to him.

15. A candidate for Examination for a Certificate of Competency who, at the time of making application, does not possess a Certificate, and who fails to pass the colour test, may not be re-examined until after the lapse of three months from the date of his first failure. If the fails a second time, he will be allowed a third trial at the expiration of another three months from the date of his second failure. A fresh fee must be paid at each succeeding examination.

16. It is therefore obviously to the advantage of Candidates for Certificates of Competency to apply in the first instance to be examined in *Colours only* on Form Exn. 2*a*.

17. A Candidate who holds a Certificate of Competency, and who, on presenting himself for Examination for a Certificate of a higher grade, is unable to pass the Colour test, will notwithstanding be permitted to proceed with the Examination for the Certificate of the higher grade.

18. Should he pass this examination, the following statement will be written on the face of the higher Certificate which may be granted to him, viz.—"This Officer has failed to pass the Examination in Colours."

19. Should be ultimately fail to pass the Examination, a like statement, relating to his being Colour blind, will be made by the Port Officer on his existing Certificate before it is returned to him.

20. Holders of Certificates which bear the statement of their having failed to pass in Colours, and who may desire to have the statement removed from their Certificates, must obtain the special permission of the Government.

Qualifications for Certificates of Competency as First Class Masters.

21. *Examination in Colours.*—All candidates for certificates of competency must first be examined in colours.*

22. A candidate for a certificate as first class master of inland steam-vessels must be not less than twenty-four years of age, and must have served as a second class master in charge of a steam-vessel for not less than three years, or he must be not less than twenty-two years of age, hold a certificate of competency as second mate granted under Act I of 1859 (for the amendment of the law relating to Merchant Seamen) or the Merchant Shipping Acts 1854 to 1883, or a certificate to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869, and have served as Mate of an inland steam vessel or master of a river flat for not less than one year.

23. Each candidate will be examined apart, and *viva voce*, in each and all of the following subjects:—

(1)—The rules of the road.
(2)—The management of river steamers under all contingencies.
(3)—The tide table.
(4)—Storm signals.
(5)—The provisions of Act VI of 1884, and the rules framed under sections 21, 29, 50 and 51 of the Act.

Qualifications for Certificates of Competency as Second Class Masters.

Examination in Colours.—All candidates for certificates of Competency must first be examined in colours.*

24. A candidate for a certificate as second class Master of an inland steam-vessel must not be less than twenty-one years of age and must produce satisfactory certificates of

* See Appendix A.

sobriety and intelligence, and that he has served three years as Mate of a small steam-vessel or as chief helmsman of a steam-vessel of over 80 horse power, and shall be examined *viva voce* as to his knowledge in the following subjects:—

(1)—The rules of the road.
(2)—The management of small river steamers.
(3)—Storm signals.

Failure.

Re-examination in case of failure.

25. If a candidate fails, he will not be re-examined *until after a lapse* of three months from the date of such failure.

Certificate of lower grade.

26. If a candidate has failed in his examination, but the subjects in which he has failed are not included in the subjects required for a certificate of a lower grade, he may, if he desires it, receive a certificate of such lower grade.

27. No part, however, of the fee he has paid will be returned to him, and on presenting himself, when entitled so to do, for re-examination for the higher grade of certificate he will be required to pay again the full fee.

Fees.

28. Candidates for examination, in making their application on Form Exn. 2*b*, will be required to pay the examination fee before any step is taken, whether by enquiring into their services or testing their qualifications, &c. Should it be found that their service is not sufficient to entitle them to be examined, or should their testimonials be unsatisfactory, or should they from any other cause not be examined, no part of the fee will be returned to them, but when they have fulfilled the requisite service, or are able to produce satisfactory testimonials as the case may be, they will be allowed to again present themselves for examination for a certificate of the same grade without paying any further fee.

Fees to be paid by applicants for examination.

29. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected and not allowed to be again examined for twelve months.

30. If a candidate fails in his examination, *no part of the fee will be returned to him.*

31. If the candidate satisfy the examiners as to his knowledge of the prescribed subjects, and generally as to his competency to command an inland river steamer, they shall certify the same to the Government, which will then grant a certificate to the candidate

Form Exn. 16.

32. The fees are as follows:—

Completion of examination.

	Rs.
First Class Master	16
Second Class Master	6
Renewal of a certificate	5

General.

33. Certificates of competency of first and second class masters shall be made and issued in the forms hereunto annexed.

34. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

INSTRUCTIONS TO EXAMINERS.

Examination in Colours.

Herewith are—

(*a.*) A lanthorn having in it a lamp in which kerosine is to be burnt.
(*b.*) A side having ground glass in it.

(*c.*) Nine slides, each having a coloured glass in it. The colours are as follows :—

1. Red (Standard).
2. Pink or salmon.
3. Green (Standard or No. 1)
4. Green (Bottle or No. 2).
5. Green* (Pale or No. 3).
6. Yellow.
7. Neutral.*
8. Blue (Standard).
9. Blue* (Pale).

(*d.*) Cards, five of each as follow :—

1. White.
2. Black.
3. Red.
4. Pink.*
5. Green
6. Drab.*
7. Blue.
8. Yellow.

Examination by Daylight. (Cards.)

In conducting the examination by daylight the examiner should do it in three ways :—

1. The cards should be mixed up. The examiner should then hold up each card separately and ask the candidate to name the colour, and if the candidate does so without hesitation he is to be regarded as having passed the daylight test.
2. If the candidate hesitates in any of his answers so as to raise a doubt in the mind of the examiner as to his ability to readily distinguish colours, the examiner should put all the cards on the table and require the candidate to select all cards of a colour or colours named by the examiner.
3. Having done that they should all be mixed up again and the candidate should be required to sort the cards into eight heaps, putting all of one colour into each heap.
4. The result of the examination should be noted and recorded in each case.

The room should be dark.

The lamp lighted and placed in the lanthorn.

The applicant should be seated or should stand so as to be opposite to the opening of the lanthorn ; and, at least, 15 feet from the front of the lanthorn.

He should first of all see the light in the lanthorn without the interposition of any glass and be asked if it appears to him to have any colour, and if so what colour?

The slide with the ground glass should then be put into the opening at the front of the lanthorn which is nearest to the light, and the applicant asked the same question.

The slide with the ground glass is to be left in, and the slides with the coloured glasses placed one by one and separately in front of it, and the candidate asked in each case to name the colour or tint.

The result of the examination should of course be noted and recorded in each case.

General.

The cards and glasses against which a star* is placed in the list are what may be called confusion tints. The candidate is not to be regarded as having "failed" if he miscalls these tints, provided that he names all the others correctly. But if having named all the others correctly he miscalls these so far as to name the drab card No. 6 as red, pink, salmon, &c. ; or to name card No. 7 as red, green, or yellow ; or glass No. 2 as green, blue, or yellow ; or glass No. 5 as red, pink, salmon, &c. ; or glass No. 7 as bright red or bright green ; or the plain ground glass any colour, the case should be reported for record. In short, if the candidate's perception or impression of these tints does not agree with the perception of the examiner, the case should be reported on the Form Exn. 17B.

The only reasons for which a candidate is to be reported as having failed are inability to distinguish red from green, or either from black by daylight ; and red from green, or either from the ground glass, by artificial light.

If a candidate fails in the colour test when the ground glass is in the lanthorn (as it is always to be when the coloured glasses are shown) the may also be tried over again with the coloured glasses without the intervention of the ground glass, and the result noted and recorded.



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By the Honourable the Lieutenant-Governor of Beng

Certificate of Competency

AS

ST CLASS MASTER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

Mr._____

Whereas *it has been reported to the Lieutenant-Governor that you have been found, after examination, duly* 'o *fulfil the duties of First-class Master of an Inland Steam-Vessel under Act VI of* 1884, *I do hereby grant you* ERTIFICATE OF COMPETENCY *as such First-class Master.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

_____ *day of* _____ 18_____.

No. of Certificate

*Address of Owner*_____

*Date and Place of Birth*_____

*Signature*_____

Any master who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty not exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

*Issued at Calcutta on the*_____*day of*_____18____.

Registered,

Port Officer of Calcutta.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

SECOND CLASS MASTER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To

Mr. _____

Whereas *it has been reported to the Lieutenant-Governor that you have been found, after examination, duly qualified to fulfil the duties of Second-class Master of an Inland Steam-Vessel under Act VI of* 1884, *I do hereby grant you this CERTIFICATE OF COMPETENCY as such Second-class Master.*

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

This _____ *day of* _____ 18__.

No. of Certificate

Bearer _____ *son of* _____ *by caste* _____

Date and Place of Birth, showing Village, Thana and District* _____

Residence, showing Village, Thana and District _____

Height _____

Personal description, stating particularly any permanent marks or scars _____

No. of Register Ticket _____

Signature _____

Any master who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty no exceeding Rs. 500.

N.B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith to the Government of Bengal.

Issued at Calcutta on the _____ *day of* _____ 18____.

Registered,

Port Officer of Calcutta.

* If not known exactly must be stated on the best information or evidence.

REGULATIONS

RELATING TO THE

EXAMINATION OF ENGINEERS AND ENGINE-DRIVERS OF INLAND STEAM-VESSELS.

Preliminary.

UNDER the provisions of the Inland Steam-Vessels Act, an inland steam-vessel having engines of eighty nominal horse power or upwards cannot proceed on any voyage unless her engineer possesses an engineer's certificate granted under the Act or the Indian Steam Ships Act, 1884, or the Merchant Shipping Acts, 1854 to 1883, or to which the provisions of any such Act have been made applicable under the Merchant Shipping (Colonial) Act, 1869; and no such ship having engines of under eighty nominal horse-power can proceed on any voyage unless she has as her engineer a person possessing an engine-driver's certificate granted under the Act or the Indian Steam-Ships Act, 1884, or a certificate of the higher grade of the nature referred to above: Provided that a steam-vessel having engines of under eighty nominal horse power shall be deemed to have complied with the law if she has as her master and engineer a person possessing both a second class master's certificate and an engine-driver's certificate granted under the Act.

Any person who has been engaged to serve as Engineer or engine-driver of an inland steam-vessel proceeds on any voyage in that steam-vessel as engineer or engine-driver, as the case may be, without being at the time entitled to, and possessed of, the certificate required under the Act, and any person who employs any person as engineer or engine-driver without ascertaining that he is at the time entitled to, and possessed of, the certificate required under the Act, is liable to be punished with fine which may extend to *five hundred rupees*.

NOTIFICATION.

No. 28 Marine, dated Calcutta, the 31st of January 1890.

UNDER the powers conferred upon him by section 29 of the Inland Steam-Vessels Act, 1884, and with the previous sanction of the Governor-General in Council, the Lieutenant-Governor is pleased to make the following rules to regulate the granting of certificates of competency to engineers and engine-drivers of inland steam-vessels.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal.

Certificates of competency granted to persons who pass requisite examinations.

1. Certificates of competency will be granted to those persons who pass the requisite examinations and otherwise comply with the requisite conditions. For this purpose examiners have been appointed and arrangements have been made for holding the examinations periodically at the port of Calcutta.

Examinations continued till all the candidates are examined.

2. The examinations will commence early in the forenoon and will be continued from day to day until all the candidates whose names appear upon the Port Officer's list on the day of examination are examined.

Application how to be made.

3. Candidates for examination must make their application upon Form Exn. 3, which must be filled up at the Port Office. The Exn. 3 properly filled in, together with the candidate's testimonials, must be lodged with the Port Officer not later than the day before the day of examination.

Testimonials required.

4. Testimonials of character, and of sobriety, experience, ability, and good conduct for at least the 12 months immediately preceding the date of application to be examined, will be required of all applicants, and without producing them no person will be examined. If the service has been on shore, the testimonial must be signed by an employer; if at sea, by either the master, managing owner, chief or superintending engineer.

5. As such testimonials and discharges may have to be verified before the candidates can be examined, it is

desirable that they should be handed in, together with the Form Exn. 3, as early as possible.

Testimonials of Foreigners.

6. The testimonials of servitude of Foreigners and of British Seamen serving in foreign vessels which cannot be verified by the Port Officer must be confirmed either by the Consul of the country to which the ship in which the candidate served belonged, or by some other recognized official authority of that country; or by the testimony of some credible person on the spot having personal knowledge of the facts required to be established. The production, however, of such proofs will not of necessity be deemed sufficient. Each case must be decided on its own merits; and if the sufficiency of the proofs given appears to be at all doubtful, the point must be referred to the Government.

Certificate as to age.

7. Should any doubt exist as to the age of a candidate, he will be required to produce a certificate of birth or baptism.

Foreigners to know English.

8. Foreigners must prove to the satisfaction of the Examiners that they can speak and write the English language sufficiently well to perform the duties required of them on board a British vessel.

Verification of services, &c., by Articles.

9. Services which cannot be verified by proper entries in the articles of the ships in which the candidates have served cannot be counted.

Qualifications for Certificates of Competency as Engineers.

Qualification of candidate for Inland Engineer's Certificate.

10. A candidate must be not less than twenty-two years of age:—

(*a*) He must have served an apprenticeship to an engineer, of three years in England or five years in India, and must prove that during the period of his apprenticeship he has been employed on the making and repairing of engines. Or, if he has not served an apprenticeship, he must prove that for not less than three years in England or five years in India he has been employed as a journeyman or masterhand in some factory or workshop on the making or repairing of engines. In either case he must also have served two years thereafter in the engine room of a steamer of over 80 horse power, or as a certificated engine-driver in a steamer of less than 80 horse power.

Or failing the above service he must have served as a certificated engine-driver in charge of a steamer for not less than four years.

(*b*) He must be able to give a description of boilers, and the methods of staying them, together with the use and management of the different valves, cocks, pipes, and connections.

(*c*) He must understand how to correct defects from accident, decay, or other causes and the means of repairing such defects.

(*d*) He must understand the use of the barometer, thermometer, and salinometer, and the principles on which they are constructed.

(*e*) He must state the causes, effects, and usual remedies for incrustation and corrosion.

(*f*) He must be able to state how a temporary or permanent repair could be effected in case of derangement of a part of the machinery, or total breakdown.

(*g*) He must write a legible hand, and understand the first five rules of arithmetic, and decimals, and their application to questions about consumption of stores, and full capacities of tanks and bunkers, the duty of pumps, and the direct strains in engines and boilers.

(*h*) He must be able to pass a creditable examination as to the various constructions of paddle and screw engines in general use; as to the details of the different working parts, external and internal, and the use of each part.

Qualifications for Certificates of Competency as Engine-drivers.

11. Candidates for examination must make their application upon the appropriate Form (Exn. 3*b*), which must be filled up at the Port Office.

12. A candidate for a certificate of competency as engine-driver must have attained the age of twenty-two years.

He must have served an apprenticeship of at least four years if in India or three years in the United Kingdom, and have served as assistant engineer for one year on a steamer of not less than 50 horse power.

Or he must have been three years principal serang or tindal in the engine-room of a steamer, or have been for three years in charge of the engine of a factory or mill under a European manager or engineer, as well as one year principal serang or tindal or assistant engineer in the engine-room of a steamer under a certificated engineer.

13. He must have the testimonial shown in Appendix B filled up by the engineer with whom he has last served, or his other testimonials must contain all the particulars therein required.

14. He must pass a *viva voce* examination before the Board of Examiners as to the working of an engine and the use of its different parts.

15. He must be able, if required, to show his practical qualifications by one week's trial in a steamer after fulfilling the other tests to which he will be subjected.

General Rules as to Examinations.

16. All books necessary for the use of candidates under examination will be provided by the Government, and applicants will not be permitted to take into the examination room any book, paper, document, or memoranda of any description whatever; and, subject to the provisions referred to hereafter, they will also not be allowed to work out their problems on a slate or on waste paper

Candidates not to take books, &c., into examination room

17. Candidates will be allowed in the time allotted to cancel any part of their work, and when required additional papers will be supplied by the Examiners. These additional sheets must be attached to, and form part of, the examination papers.

18. In the event of any candidate being discovered copying from another, or affording any assistance or giving any information to another, or communicating in any way with another during the time of examination, he will be regarded as having failed in his examination, and will be turned back for three months, in the same manner as if he had failed in the practical part of the examination; and no part of the fees he may have paid for examination will be returned to him.

Punishment for breaking rules.

19. If a candidate leaves the room before answering any question which has been given to him, he cannot afterwards be permitted to answer it, but the examiners may substitute other data or another question.

Leaving examination room.

20. All applicants presenting themselves for examination for certificates of competency as engineers will be required to give written answers to eight out of a list of ten questions selected from Form Exn. 15*a*,* "Elementary Questions for the first examinations of Engineers for certificates of competency" These questions are intended to furnish a record to some extent of the candidate's knowledge at the time of his examination, and also to induce the candidates to pay more attention to their handwriting and spelling.

Questions from Form Exn. 15*a*.

21. The Form Exn. 15*b*., on which these answers will be written, contains also some questions as to the experience of the applicant, to be answered by him in writing.

22. Examiners may add to their *viva voce* questions on the practical management of steam engines and boilers any of those contained in Exn. 15*a*.

* *See* Appendix A.

23. If at the expiration of the time allowed the candidate has worked out correctly the whole of the questions set to him, and given satisfactory answers in the *viva voce* examination, he will be declared to have passed.

24. If at the expiration of the time allowed he has not worked out the whole of the questions set to him, but if the result of the *viva voce* examination taken in connection with the answers to such of the questions as he has worked out is sufficient to satisfy the Examiner that the applicant is competent to take charge of engines, he will be declared to have passed.

25. In other cases he will be declared to have failed.

(Exn. 15) 26. A report of the examination, and the examination papers, will be forwarded to the Government on the Form (Exn. 15).

Notification of having passed will be given to successful candidates. (Exn. 16) 27. If the candidate passes, he will receive the Form Exn. 16, upon which the Government will issue the certificate to the candidate, whose testimonials, &c., will be returned at the same time. It is therefore important that the port of destination of the certificate should be the same on both the Form Exn. 16 and the Form Exn. 2. If circumstances should make any alteration necessary, the examiners should see that it is made in both forms, otherwise delay in the issue of the certificate may be caused.

Fees.

Fees to be paid by applicants for examination. 28. Candidates for examination, in making their application on Form Exn. 3 or Exn. 3*b*, will be required to pay the examination fees before any step is taken, whether by inquiring into their services or testing their qualifications, &c. No part of the fee will under any circumstances be returned to them, but should it be found that their service is not sufficient to entitle them to be examined, or that their testimonials are unsatisfactory, they will be allowed to present themselves for examination without paying any further fee, when they have fulfilled the requisite service, or are able to produce satisfactory testimonials, as the case may be.

29. The fee for examination must be paid to the Port Officer. In any case in which a candidate offers money to any other officer, and in any place but in the Port Office, the candidate so offering money will be regarded as having committed an act of misconduct, and will be rejected, and not allowed to be examined for twelve months.

30. If a candidate fails in his examinations, *no part of the fee he has paid will be returned to him.*

31. The fees are as follow:—

	Rs.
Engineers	12
Engine drivers	10
Renewal of a certificate	5

Failure.

32. If the applicant fails in the *viva voce* or practical part of the examination, he may not present himself for re-examination until he can produce proofs of THREE MONTHS' further service afloat. If he fails in arithmetic or drawing only, he may come up again at any time. Engine-drivers may be examined *de novo* after six months, if the past examination showed that they might reasonably be expected to qualify.

General.

33. Certificates of competency of engineers and engine-driver shall be made out and issued in the forms hereunto annexed.

34. Every certificate of competency shall be made in duplicate, and one copy shall be delivered to the person entitled to the certificate, and the other shall be kept and recorded by the Port Officer of Calcutta.

APPENDIX A.

Form Exn. 15a.

ELEMENTARY QUESTIONS FOR THE FIRST EXAMINATIONS OF ENGINEERS FOR CERTIFICATES OF COMPETENCY.

To Engineer Examiners.

Examiners will require all candidates to fill up a form, Exn. 15*b*., of which a copy is enclosed, and they will forward the same to the Government along with the report of the examination.

The arithmetical questions for Engineers and the *viva voce* examinations for all candidates will be continued as heretofore, and failure in the elementary questions will be treated as failure in arithmetic.

The numbers of the questions for each examination will be selected by the examiners, and they are not to be communicated to the candidate until his examination commences.

Exn. 15b.

Port ____ Class for which examined ____

Date ____ Candidate's name ____

A. Where and how long did you serve in works at the making or at the repairing of Engines, and in what capacities?

B. How long have you served as fireman or trimmer?

C. How long have you served in the Engine-room at sea, and in what capacities?

D. With what descriptions of Engines have you served at sea—Paddle or Screw or both, Jet Condensing, Surface Condensing, or Non-condensing Engines, Compounds, Trunks, Inverted Cylinders, or Horizontal Engines? What size were the Engines?

E. With what descriptions of Boilers have you served at sea—Rectangular or Cylindrical, Wet-bottomed or Dry-bottomed, Multitubular, Sectional or Flue Boilers?

F. What Engine defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

G. What Boiler defects have come under your notice at sea, what caused these defects, and how were they remedied? Give the names of the Steamers for verification.

For the questions to be answered on the following pages, *See* the book of Elementary Questions. The questions need not be written: only the answers to them.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

Question No.

ELEMENTARY QUESTIONS.

1.

What parts of an engine are generally made of wrought-iron?

2.

What parts of an engine are generally made of cast-iron?

3.

For what parts of an engine is steel sometimes used?

4.

What parts of an engine are generally made of brass or gun-metal?

5.

Where is "white metal" sometimes used? On account of what property possessed by it is it adopted? What objection is there to its more general use?

6.

For what parts is Muntz metal sometimes used? Is it malleable? For what properties is it valued?

7.

What difference is there in the composition of cast-iron, of wrought-iron, and of steel?

8.

How can cast-iron, wrought-iron, and steel be distinguished from each other?

9.

What are the different properties of cast-iron, of wrought-iron, and of steel.

10.

What is meant by the terms "breaking stress," "proof stress," "safe-working stress"?

11.

What is the cohesive strength or breaking stress of good ordinary wrought-iron?

12.

Tempering steel: how is it done, and in what order do the colours come?

13.

What is case-hardening?

14.

Which of the common metals or alloys can be forged, and which of them are brittle or "short"?

15.

What is meant by "welding"? Which of the common metals can be welded?

16.

The expansion of metals by heat: give examples of this in the engine and in the boiler.

17.

In the construction of cylindrical marine boilers, for what parts have the plates to be worked hot? When the material is steel, what precautionary treatment of these plates is afterwards necessary?

18.

What is double riveting? In what parts of cylindrical marine boilers is double riveting employed? In which of the shell seams is it most necessary?

19.

What is "caulking," and how are seams prepared for caulking?

20.

Describe the different ways of fastening the ends of the main stays of a boiler. What are the merits of, or objections to, the different plans?

21.

What strain per square inch is allowed on boiler stays?

22.

Describe a riveted stay, and state where such stays are commonly used.

23.

Where are thin plates to be looked for in a boiler as it wears, and how is the thinness to be detected?

24.

How are boiler tubes fixed? What are "stay tubes," and how are they secured?

25.

Where is it generally that boiler tubes leak? How is this defect repaired? What are the causes of this leaking?

26.

What are the causes of cracked tube plates? Where are the cracks situated? How are they repaired?

27.

What is the difference between a "dry uptake" and a "wet uptake"? Which requires most repair? Why? Where have you seen a wet uptake?

28.

What is a superheater? What is its construction? What valves are on it? There is sometimes a gauge glass on it; what is that for?

29.

What parts of a marine tubular boiler are first injured by shortness of water?

30.

Where are angle irons sometimes used in the construction of a boiler, and where are flanged plates used?

31.

Priming: to what causes is it attributed? What means are applied to prevent it? What evils may be produced by it?

32.

Funnel draught: what makes it? What checks it?

33.

Flame is sometimes seen at the top of the funnel: what causes this appearance? Is it beneficial or is it detrimental? Why so?

34.

A blast pipe: what is its construction? Where is it placed For what is it used?

35.

How many bottom blow-off cocks are generally fitted to each boiler, and why are they so fitted?

36.

Blow-off cocks are sometimes fitted with a spanner guard: for what purpose is this? Describe how the guard is formed?

37.

Test cocks or water-gauge cocks: where are they placed? At what heights? Must the cocks themselves be at those heights? What provision is made for cleaning these cocks? Should they ever become choked? When there are no test cocks, how is the height of the water ascertained?

38.

What is a dead-weight safety valve? Of what are the rubbing surfaces formed? How is a lock-up valve arranged to admit of lifting it or of turning it round, and to prevent adding to the weight?

39.

About what area of safety valve is now required by the Board of Trade? What area was formerly required, and on what ground has that been altered? What is the effect of suddenly opening a safety valve when steam is up? To about what extent do safety valves rise when blowing off without being eased by hand?

40.

Spring-loaded safety valves: what advantages have they that are not possessed by dead-weight valves? What are the disadvantages as compared with dead-weight valves?

41.

Of what pieces does a glass water gauge mounting consist? How does it act? Where is it placed? At what height? Is it liable to derangement? How is its working tested?

42.

Glass water gauges have sometimes pipe connections top and bottom: what is the object of this arrangement? Should there be cocks at the extremities of these pipes?

43.

Describe a Bourdon's steam gauge. Some gauges have an inverted syphon pipe below them: what is its use?

44.

Why is a small cock sometimes put on the pipe leading to a steam gauge? Where should it be placed, and what error might be made by omitting to use it?

45.

Do steam gauges indicate the total pressure of the steam, or only a portion of that pressure? What is the pressure measured from?

46.

What is meant by the salting of the boiler? How is this prevented? What is the density of ordinary sea water? How is the density ascertained? What is the difference between the formation of scale and the salting of the boiler? What is the maximum density at which boilers should be worked at sea?

47.

Scum cocks and pipes: how are they arranged? Where are they placed? At what height in the boiler? When are they used? When must they be shut? Neglect of these cocks lead to what dangers?

48.

Scale: of what does it consist? Where is it most objectionable? How is it removed? How is its formation prevented? What evil effects are produced by it?

49.

What is a salinometer? Of what does it consist? How does it act? How is it graduated? Can it be used at any temperature indiscriminately?

50.

What harm may be done through the check valve of one of a set of boilers being defective while under way? How would you work to avoid this harm?

51.

How is the leak from a split tube stopped in a boiler at sea? Describe the operation.

52.

What is the use of dampers? Where are they fitted? When should they be used?

53.

When there are no dampers fitted, what is used instead? What evil to the boiler is sometimes attributed to this? When the heating surfaces are clean does this occur?

54.

Describe the piston of a steam cylinder, with its different rings and their uses. There are generally round pieces let in flush on one side of a piston: what are they? How are these pieces fixed?

55.

Cylinder drain cocks: what is their use? There is sometimes a valve upon each cock: what purpose does it serve?

56.

Cylinder escape valves: of what do they consist? How protected? How regulated? When are they most needed? To what danger do they expose the Engineer? What precaution is sometimes used to obviate this danger?

57.

What is a compound engine? What different kinds are there for screw steamers, in respect to the number and arrangement of their cranks and cylinders? What is a triple expansion engine?

58.

What is link motion? What are some of its advantages? In modern engines for the screw propeller when there is no link motion, what takes its place?

59.

What is a separate expansion valve? Why is it not fitted to all engines? What effect has an expansion valve upon the starting and upon the reversing of the engine?

60.

What arrangement is applied to reduce the friction of a slide valve? To what is the friction due?

61.

Describe a loose eccentric; how does it act? In what engines is the loose eccentric still employed?

62.

What is the travel of the eccentric rod? How is it measured on the eccentric? What is the travel of the slide valve when the link motion is in mid gear and the engine still moving?

63.

What are "double beat valves"? Why are they not generally used for safety valves? Are they ever used instead of the slide valve? What objections are there to their use?

64.

What is a circulating pump? Is it always worked by the main engine? Give an example from your last steamer of the three water temperatures generally noted by careful engineers.

65.

An air valve is sometimes fitted to a circulating reciprocating pump: what purpose does it serve?

66.

What is the difference between a bucket air-pump, a piston air-pump, and a plunger air-pump?

67.

Whether are double-acting air-pumps made with plungers, with pistons, or with buckets?

68.

What is an air-pump trunk? When is it necessary? How is it attached to the bucket?

69.

What class of air-pump requires both foot and delivery valves, and in what other class can either of these valves be in some cases dispensed with?

70.

When under way, when the air-pump bucket is at the top of its stroke, at what height is the water in the condenser?

71.

With a surface condenser and a single acting air-pump, what is the effect of a leaky foot valve, and what is the effect of a leaky bucket when there is also a foot valve?

72.

Air-pump pet cock or valve: where is it placed? How does it act? What is its object? Does it in every case reduce the effective capacity of the pump? Is it equally applicable to double acting pumps?

73.

At what temperature is the hot well worked? What is the effect of higher temperatures? What is the effect of lower temperatures? What limits the lowness of temperature? Has a very low temperature any disadvantages?

74.

Bilge injection with common condensers: what are the fittings required? When is it used? What precautions are necessary in using it?

75.

When surface condensers are used, what takes the place of the bilge injection? To what is the connection made? How is its valve formed? Why is this necessary?

76.

What are the practical guides to the proper amount of opening of the inlet valve for the circulating pump?

77.

Feed-pump pet cock or valve: where is it placed? What is its use? How does it act? Is it always a necessary fitting?

78.

What are some of the ways of fastening the ends of surface-condenser tubes? About what size and about what thickness are condenser tubes? What parts of a surface condenser are made of brass?

79.

What is a blow-through valve or cock? To what is it attached? There is sometimes a valve that when opened admits steam from the slide valve casing to the exhaust port: what is its use? To which cylinder is it fitted?

80.

What is a snifting valve? What is its use? Where is it placed? Can it be placed too high? Can it be placed too low? At what height should it be placed? Was there one in your last steamer; if so, where was it? Why are snifting valves generally omitted now?

81.

What connections are generally fitted to the donkey-pump, and to what services can it be applied?

82.

When the engines are stopped with steam up, what are to be shut and what are to be opened?

83.

How is an engine heated up before starting? What precautionary examinations are made before starting?

84.

What is an interceptor or catch-water? Where is it fixed; what is its construction; how does it act; and what attention does it require?

85.

Describe an air-pump bucket, with its valve or valves and its packing. Of what are the valves generally made?

86.

Of what materials are air-pump rods made? Why so?

87.

What is the racing of the engine? When does it occur? What danger attaches to it? What is done to prevent it?

88.

What are marine governors? What is their general construction? How do they act?

89.

What is meant by the "pitch" of a screw propeller? How is it measured?

90.

Explain the difference between a "right hand" and a "left hand" propeller, and state how each of them revolves.

91.

What is the slip of a screw propeller? How is its amount expressed in figures?

92.

Which of the valves about engines and boilers have to be worked by hand, which of them work self-actingly, and which are worked by the motion of the engine?

93.

Why is soda sometimes put into a boiler, and how is it put in which under way? What is the kind of soda used?

94.

Tallow cups for cylinders were sometimes made with two small cocks, or with only one small cock, or with one large hollow plug cock, or with one small cock and a valve; which of these is suitable for a high-pressure cylinder, and which for the cylinder of a condensing engine? Describe how the cup with only one small cock is used. What is now generally used instead of these? How has this change come about?

95.

Does a cylinder escape valve, self-acting, allow all the water to escape; if not, how much is left in the cylinder?

96.

What is a "Steam Lubricator" (sometimes called an Impermeator)? Explain its action; to what part of the engine is it connected; whether will throwing cold water over it make it work faster or slower? Describe the one used in your last steamer?

97.

A common paddle wheel: of what is the centre made? Of what are the arms formed? What is the form of the bolts which attach the floats to the arms? How are the arms attached to the centres?

98.

Why have some paddle wheels one or more cast-iron floats in each wheel? With what engines are these most required? At what part of the circumference are they placed?

99.

Why are paddle wheel floats sometimes made of different breadths in the same wheel? With what description of engine is this most needed? Where are the broad floats placed, and where are the narrow floats placed in the circumference of the wheel?

100.

What difference is there between a radial paddle wheel and one with feathering floats? What is the object of feathering floats? Are all the eccentric rods attached in the same way, and are they all of the same form?

101.

Whereabout is the centre of the eccentric of a paddle wheel with feathering floats placed? In that case are the feathering levers on the striking face or on the back of the float? When the paddle shaft has an outer bearing, how is the eccentric made?

102.

Of what materials are the working surfaces of a paddle wheel with feathering floats? Are they all lubricated? With what?

103.

What is a "Disconnecting Paddle Engine"? At what place is the disconnecting effected? How is it accomplished? In which of the cranks of a disconnecting engine are the crank pins fixed?

104.

Whether is link motion valve gear or the loose eccentric generally used for disconnecting paddle engines? For what steamers are disconnecting paddle engines frequently employed?

105.

What are expansion joints? Where are they necessary? What attention do they require? Of what should the working surfaces be made?

106.

What omission in the construction of expansion joints may lead to a serious accident when steam is first applied? How is this prevented in the construction of a steam trunion pipe for an ing engine?

107.

Describe an oil cup with a syphon worsted. How is the worsted arranged? How is it cleaned? How far down the tube does it extend?

108.

Describe a thrust bearing; which of the surfaces wears? Why are there sometimes a number of oil tubes for one thrust bearing?

109.

What parts of a screw shaft are generally covered with brass? Why is this necessary? About what thickness is the brass?

110.

What is the stern tube or screw shaft pipe? Why is a pipe of such a length required? Of what is it made? How is it fixed at each end?

111.

What is a lignum vitæ bearing? How is the wood fitted? Where is such a bearing generally used?

112.

How is a screw propeller fixed on the shaft? What means are used to prevent its getting loose at sea?

113.

Where are sluice valves placed? What large sluice valve is here in almost all screw steamers? From what position should this valve be worked? Why so? What attention should it receive?

114.

With a condensing engine; what valves or cocks are on the skin of the ship in the engine-room and in the stokehole?

115.

What are the necessary fittings of a marine boiler?

116.

With a surface condensing engine what cocks or valves are open some time before the engine is started so as to be ready for starting whenever the order is given?

117.

What is a steam jacket? What cocks are on it? In what engines are jackets most generally used? Do they require to be felted?

118.

What parts of an engine or its fittings should be felted or otherwise protected from radiation?

119.

What are the small cylinders sometimes fitted on the slide valve casing cover of vertical engines? Explain their action. To what are they connected by a pipe? Why so?

120.

Name the principal pipes in connection with the engines and boilers of a steamer, and state to what the ends of these pipes are connected.

121.

Through what cocks or valves, pipes and chambers does the water pass on its way from the sea inlet rose plate to the water space of the boiler, with a jet condenser?

122.

Through what cocks or valves, pipes and chambers does the circulating water of a surface condenser pass?

123.

Through what cocks or valves, pipes and chambers does the steam pass from the boiler until it is in the form of water in the hot well?

124.

Name the pieces of the engine through which the pressure of the steam is transmitted from the piston to the screw propeller. Name them in the order in which they act.

125.

What is an air vessel? How does it act? At what parts of an engine or of its fittings are air vessels generally applied?

126.

What is the construction of a mud box? Where should mud boxes be placed? Why are they necessary? How should the space be divided by the rose plate, and why?

127.

What is a trunk engine? When used in a horizontal engine for a right-hand screw propeller at which side of the vessel should the cylinders be placed? Why so?

128.

What is an oscillating engine? For what steamers are oscillating engines generally adopted? Why? How is the steam conveyed to and from the slide valve casing?

129.

Of what parts does the valve motion gear of an oscillating engine consist?

130.

For what have geared engines sometimes been used? Of what were the cogs of the large wheel made?

131.

At what part of a screw steamer is the pressure that propels t applied to the hull?

132.

At what part of a paddle steamer is the pressure that propels applied to the hull?

133.

About how much fuel per indicated horse power per hour is equired by modern steam engines, common, compound and triple xpansion?

134.

What is the explanation of the economy of the surface con-enser?

135.

What is the construction of a surface condenser? Of what are s tubes made? How are they fixed? How are they kept ght? What is done with a split tube?

136.

Where do surface condensers foul? How are they cleaned?

137.

What non-conducting substances are employed to prevent diation, and how are they applied?

138.

In the construction of smoke-box doors and of dry uptakes, iat provision is made to lessen the amount of radiation?

139.

How can the formation of black smoke be prevented? Describe ioke preventing apparatus.

140.

What is meant by "circulation" in a boiler, and what are the ults of defective circulation?

141.

What means are sometimes adopted to improve the circulation a boiler?

142.

By what arrangement is the circulation promoted in a "hay-ck" boiler?

143.

Describe a ship's side air-pump discharge valve, in what res-ts does it sometimes differ from a common stop valve, and at attention does it require?

144.

What is the construction of a feed escape valve, to what is its harge connected, and how is its loading regulated?

145.

When there is no feed escape valve, what is the arrangement he feed valves or cocks?

146.

What is the measure of a horse-power? How is indicated horse er ascertained?

147.

Has "nominal horse power" a fixed meaning? What is the use of this expression? What is generally taken as the measure of one horse power nominal?

148.

What is "back pressure" in a cylinder? About how much is it in each of the cylinders in your last steamer? Is excessive cushioning ever a trouble under certain conditions in modern engines? Say when and why and in which cylinder this occurs.

149.

What is meant by "speed of piston"? About how much is the speed of piston in modern marine engines?

150.

What is "atmospheric pressure"? What is its average amount? What instrument tells this amount?

151.

What is "gross pressure" or "absolute pressure"? What pressure is it that is shown by the steam gauge?

152.

What is meant by "cutting off" steam? How is it done? What part of the valve regulates the cut off?

153.

What is a piston slide valve? Describe its construction. Why are such frequently employed in place of the common slide valve? What is a great drawback to the use of these valves?

154.

What fixes the time of closing the exhaust? After the exhaust is closed and before the port opens for steam, what becomes of the steam that is in the cylinder?

155.

What is the "lead" of the valve? What is its object? About what amount is it?

156.

What is the "cover" or "lap" of the valve? What is its object? About what proportion of the stroke of the valve is it made?

157.

What is the "exhaust cover" of a slide valve? What is its effect upon cushioning and upon exhaust?

158.

What is "minus cover" or "minus lap" on the exhaust? What is its effect upon the exhaust and upon cushioning?

159.

What is "cushioning" or "compression" in a steam cylinder? How is it affected by the amount of cover or of minus cover there may be upon the exhaust? How is it affected by the exhaust pressure?

160.

What is "mean effective pressure"? How is its amount ascertained?

161.

What is a dial vacuum gauge? What is its construction? For what is it used? About what amount should it show when the engine is working all right? What effect has the variations it indicates on the performance of the engine?

162.

Does the vacuum gauge enable you to tell what pressure there is in the condenser, or must you have recourse also to the barometer to arrive at that? How would you ascertain the actual amount of back pressure there is in the condenser?

163

What is a barometer? What is its construction? Is a barometer sometimes used instead of a vacuum gauge? In what respect does the weather barometer differ from the vacuum gauge barometer?

164.

The common vacuum gauge and the common steam gauge, in which of them are the graduations marked from atmospheric pressure? Does either of them tell what is the true actual pressure in the boiler or in the condenser?

165.

Do steam and vacuum gauges vary with the variations of the weather barometer? When the weather barometer varies from 29 to 31, how much will the vacuum gauge vary, and how will that affect the working of the engine? Why so?

166.

Vacuum is generally stated as so many inches. What is meant by, say, 20 inches vacuum? What does that tell us about the absolute pressure of the vapour then in the condenser?

167.

From what depth will a pump draw water? Is there any limit? Why?

168.

What is vacuum? Can vacuum move a piston? When the temperature of the water in the condenser is 212°, what is the greatest degree of vacuum there can then be in the condenser?

169.

What is a thermometer, its construction? What is the property of matter that is the principle of its construction? What temperatures are regularly noted by careful engineers?

170.

What is the temperature of (1) melting ice, (2) of boiling water, (3) of steam about 60 lbs. pressure by the steam gauge, (4) of steam about 100 lbs, and (5) of strain about 150 lbs, also (6) of smoke in the funnel, and (7) of water in the hot well?

171.

What is meant by the "conduction" of heat? Give examples of it in the boiler and in the engine.

172.

What is meant by the "convection" of heat? Give examples of it in the boiler and in the engine.

173.

What is meant by "radiation" of heat? Give examples of it in the boiler and in the engine.

174.

Which is convection, which is radiation, and which is conduction in the following cases: (1) Heat from the glowing fuel to the furnace crown. (2) Heat passing from one side of the furnace crown plate to the other. (3) Heat passing from the steam pipes in the engine-room. (4) The heat of evaporation?

175.

What are the effective heating surfaces of a marine boiler? What is an objection to vertical heating surfaces?

176.

What parts of a marine engine are exposed to danger when the temperature is below freezing point?

177.

What precautions are necessary in cold climates when the temperature is below freezing point?

178.

State as many ways as you can by which a boiler might not get its full feed; that is, a boiler, or one of a set of boilers, get short of water, although the feed valve is open its proper amount; to what causes might this be due?

179.

Of what are furnace bars generally made About what thickness are they at top? About what space is between them? Whether are the bars put further apart for Newcastle coal or for Welsh coal?

180.

Which burns faster, Newcastle coal or Welsh coal? Which is the flaming coal? Which makes most smoke?

181.

About how many tons of steam coal will be burnt per day in our furnaces, each 3' 0" wide, and of about the usual length? On what grounds do you say so?

182.

About how many tons of steam coal will be burnt per day with good compound engines to drive an ordinary steamer of 40 ft. beam 10 knots an hour by steam alone? On what grounds do you say so? What percentage more coal would be required to propel the same steamer one knot faster?

183.

About how many tons of steam coal will be burnt per day with a good compound engine, surface condensers, the low pressure cylinder 70 inches diameter, doing average work? On what grounds do you say so?

184.

A pair of inverted cylinder direct acting engines, there is a liner half an inch thick between the ahead eccentric rod and the eccentric strap, in overhauling the engine this piece is lost and forgotten; what difference will its omission make in the working of the engine, on the admission, on the cut off, and on the exhaust of the steam? Which will take place earlier, and which later, distinguishing between the up stroke and the down stroke?

185.

A pair of inverted cylinder direct acting engines driving a right-hand screw; on which of the crosshead guide bars is the pressure greatest in the up stroke, and on which in the down stroke?

186.

A screw propeller is getting loose, it has a little play on the shaft, sideways on the key or feather; how will this show in the engine-room?

187.

How would you prove whether the centre line of the trunions of an oscillating cylinder be fair with the centre line of the main shaft?

188.

How can the fairness of a line of screw shafting be tested without lifting the shafts?

APPENDIX B.

TESTIMONIAL.

hereby certify that has served with me in the engine-room of as principal serang or tindal for a period of , during which time he has discharged his duties to my entire satisfaction.

I consider that he fully understands the working of an

ANY Engineer giving a testimonial in this form should be very careful in doing so, as the document may materially influence the applicant's elligibility as a candidate.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

ENGINEER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To _____

Whereas *it has been reported to the Lieutenant-Governor of Bengal that you have been found duly qualified to fulfil the duties of Engineer of an Inland Steam-Vessel, I do hereby, in pursuance of Act VI of* 1884, *grant you this* ***CERTIFICATE OF COMPETENCY.***

By order of the Government of Bengal,

Given *under my* Hand and Seal,

Under-Secy. to the Govt. of Bengal.

This _____ 18

No. of Certificate of Competency

*Bearer*_____ _____

*Date and Place of Birth*_____

*No. of Register Ticket*_____

*Signature*_____

Any ENGINEER who fails to deliver up a Certificate which has been 'lled 'spended, *is liable to a penalty not exceeding Rs.* 500.

N.B.—Any person other than the owner thereof becoming possessed of this tific *required to transmit it forthwith to the Government of Bengal.*

Issued at Calcutta on the _____ *day of*____ _____18___

Registered,

Port Officer of Calcutta.

Government of Bengal.

By the Honourable the Lieutenant-Governor of Bengal.

Certificate of Competency

AS

ENGINE-DRIVER OF AN INLAND STEAM-VESSEL UNDER ACT VI OF 1884.

To _____

Whereas *it has been reported to the Lieutenant-Governor of Bengal that you have been found duly qualified to fulfil the duties of Engine-Driver on an Inland Steam-Vessel having engines of under* 80 *nominal horse-power, I do hereby, in pursuance of Act VI of* 1884, *grant you this CERTIFICATE OF COMPETENCY as Engine-Driver.*

By order of the Government of Bengal,

Given *under my* Hand and Seal

This _____ *day of* _____ 18__. *Under-Secy. to the Govt. of Bengal.*

No. of Certificate

*Bearer*_____ *son of*_____ *by caste*_____

Date and Place of Birth showing Village, Thana and District*_____

*Residence showing Village, Thana and District*_____

*Height*_____

*Personal description, stating particularly any permanent marks or scars*_____

*No. of Register Ticket*_____

*Signature*_____

*Issued at Calcutta on the*_____ *day of*_____ 18____.

Any Engine-Driver who fails to deliver up a Certificate which has been cancelled or suspended is liable to a penalty no exceeding Rs. 500.

N. B.—Any person other than the owner thereof becoming possessed of this Certificate is required to transmit it forthwith t the Government of Bengal.

Registered,

Port Officer of Calcutta.

* If not known exactly must be stated on the best information or evidence.



APPENDIX TO

The Calcutta Gazette.

WEDNESDAY, FEBRUARY 26, 1890.

SECOND QUARTER.

BENGAL LIBRARY CATALOGUE OF BOOKS

FOR THE

Second Quarter ending the 30th June 1889.

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						ARABIC
	RELIGION.					
33	Adab Ul Mufrad. Lessons on Morals and Manners.	Arabic...	Hafiz Muhammad.	Religion, M.	Lithographed and published at Arrah.	Lithographed by Muhammad Idris, and published by Abu Muhammad Ibrahim.
34	Al Musnad o Lel Imam Safái. Imam Safái's Throne.	ditto ...	Abu Abdulla Muhammad.	ditto ...	ditto ditto ...	ditto ditto ...
						ASSAMESE
	ART.					
	The following work is designed for educational purposes.					
186	Saral Bhúmi Parimán. Simple Mensuration.	Assamese.	Prabhát Chandra Sarasvatí.	Art ...	Printed at 46, Pánchánantala Lane, Calcutta, and published at Gauhati.	Printed by 'Sánnyál & Co., and published by Prabhát Chandra Sarasvatí.
	DRAMA.					
187	Bhram Ranga. The Comedy of Errors. (T.)	ditto ...	Translated by Ratnadhar Barua and others.	Drama ...	Printed and published at 100, Bowbazar Street, Calcutta.	Printed and published by B. C. Sarkár.
	MISCELLANEOUS.					
	The following work is designed for educational purposes.					
188	Kárya Shikshá. Instruction in Business.	ditto ...	Kálirám Baruá.	Miscellaneous.	Printed at 84, Raja Rajballabh's Street, Calcutta, and published at Kámrup, Gauhati.	Printed by Naba Kumár Bose, and published by Kálirán Baruá.
	POETRY.					
189	Mahájan. The Great Man.	ditto ...	Dibákar Sharmá.	Poetry ...	Printed at 132, Maniktala Street, Calcutta, and published at Jorehat, Assam.	Printed by Harihar Nandi, and published by Dibákar Sharmá.
	RELIGION.					
190	Kán Khoá o Rás Kriyá. The Ear Eating Demon and the Rása sports of Krishna. (R).	ditto ...	Sankar Deb and Sridhar Kandali.	Religion, H.	Printed at 333, Upper Chitpore Road, Calcutta, and published at Barpeta, Assam.	Printed by Binod Bihári Sil, and published by Dáibar Rám Byápári.
	SCIENCE (MATHEMATICAL.)					
	The following work is designed for educational purposes.					
191	Dhárápát. Arithmetical Tables.	ditto ...	Kálirám Barua	Science (Mathematical.)	Printed at 84, Raja Rajballabh's Street, Calcutta, and published at Kamrup, Gauhati.	Printed by Nabakumár Bose, and published by Kálirám Barua.
						BENGALI
	ART.					
8471	Saral Púrtta Shikshá. Easy Knowledge of Public Works. Parts II, III, IV.	Bengali.	Kunjabiharí Chaudhúrí.	Art ...	Printed and published at Bhawanipore.	Printed and published by Nabin Krishna Mukharji.

Quarter ending 30th June 1889.

8	9	10	11	12	13	14	15	16	17
Date of issue from the press, or place of publication	Number of sheets, leaves, or pages.	Size.	First second, or other edition.	Number of copies of which the edition consists.	Printed or litho-graphed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks	Number.
BOOKS.									
1889.	Pages.					Rs. A. P.			
April, 7th	196	11 × 7 ...	1st ...	1,050	Litho-graphed.	1 12 0	Abu Muhammad Ibrahim, Arrah.	Based on the Hadis... ...	33
Mar., 20th	220	11 × 7 ...	1st ...	1,050	ditto ...	1 12 0	ditto ...	The standard work of Iman Sáfáí's school of Sunnism. It is based on the Hadis.	34
BOOKS.									
1889.									
Mar., 19th	71	12mo dy	2nd ...	1,000	Printed	0 6 0	Prabhát Chandra Sarasvati, Gauhati.	.....	186
April, 17th	101.	12mo dy	1st ...	500	ditto ...	0 6 0	R. D. Barua, R.K. Barkákati, G. N. Barua, and G. S. Barua, 40, Panchánantala Lane, Calcutta.	An Assamese translation of Shakespeare's Comedy of Errors.	187
May, 21st	74	8vo dy...	15th .	3,000	ditto ...	0 6 0	Kálirám Baruá. Kamrup, Gauhati.	.....	188
„ 14th	10	12mo dy	1st ...	1,000	ditto ..	0 1 0	Dibákar Sharmá, Sibságar, Assam.	The writer thinks that a man who is virtuous, fears God, and sympathises with the sufferings of others, is a great man.	189
April, 26th	38	12mo dy	New	1,000	ditto ..	0 4 0	Dáibar Rám Byápári, Barpeta, Assam.	Kán Khoá is a demon who is supposed to eat the ears of children. Jasodá wants to frighten the infant Krishna by inspiring him with a dread of this demon; but Krishna says he knows nothing about him.	190
May, 6th	24	8vo dy	2nd ...	4,000	ditto ...	0 1 6	Kálirám Barua Kamrup, Gauhati.	.....	191
BOOKS.									
June, 15th	156	12mo dy	1st ...	1,000	ditto ...	1 8 0	Kunjabiharí Chaudhuri.	A manual of Civil Engineering. The present work treats of the construction of roads and bridges and of the excavation of tanks. It contains a number of illustrations and diagrams.	8471

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI
	ART—*concld.*					
	The following works are designed for educational purposes.					
8472	Parimiti. Mensuration	Bengali .	P. Ghosh ...	Art ...	Printed and published at 28 Convent Road, Entally.	Printed and published by Dwaraká Náth Nandan.
8473	Saral Parimiti. Simple Mensuration.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8474	Sahaj Parimiti. Easy Mensuration.	ditto ...	Brajapati Banerji.	ditto ...	Printed at 23-1, Bechu Chatterji's Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Jadu Nath Sil, and published by the Sanskrit Press Depository.
8475	Saral Sámatalik Parimiti. Simple Mensuration of Plane Surfaces.	ditto ...	Srinath Dé ...	ditto ...	Printed at 6, Balaram De's Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by H. M. Mukharji and Company, and published by the Sanskrit Press Depository.
8476	Ditto ditto ...	ditto ..	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
8477	Deshiya Jarip. The Indigenous Method of Surveying.	ditto ...	Rájeswar Gupta.	ditto ..	Printed and published at 2, Benetola Lane, Calcutta.	Printed and published by Natabar Chakrabartí.
8478	Hastalipir Adarsha. A Copy-book.	ditto ...	Rajanikánta Chatterji.	ditto ...	Printed and published at the Amar Press, Komilla.	Printed and published by Nilambar Datta.
8479	Krishi Sopán. Elementary Treatise on Agriculture.	ditto ...	G. C. Bose ..	ditto ..	Printed and published at Serampore.	Printed and published by Jitendra Náth De.
	BIOGRAPHY.					
8480	Kabiranjan Rámprasád Sener Jiban Brittánta. A Biography of Rámprasád Sen.	litto ..	Shántirám De.	Biography.	Printed at 374, and published at 112, Chitpore Road, Calcutta.	Printed by Hara Chandra Das, and published by Shántiram De.
8481	Jiban Charit ...	ditto ..	Ajimuddin Muhammad Chaudhuri.	ditto ...	Printed and published at Barisal.	Printed by Iswar Chandra Kar, and published by Kází Afzaluddin.
	DRAMA.					
8482	Mahábhárat Nátya Kábya. The Mahábhárata A Drama. Vol. II. Part 6.	ditto ...	Prafulla Chandra Mukharji.	Drama ...	Printed at 4, Garstin's Place, and published at 22, Beadon Street, Calcutta.	Printed by Nandamohan Banerji, and published by Prafulla Chandra Mukharji.
8483	Ditto ditto. Vol. II. Part 7.	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto ditto ...
8484	Bichitra Bichár Nátak. A Drama describing a Curious Trial.	ditto ...	Nabakrishna Banerji.	ditto ...	Printed at 3, Beadon Square, and published at 34, Nemu Gosain's Lane, Calcutta.	Printed by Biharilál Das, and published by Haridás Bhattácháryya.
8485	Rában Badh. The Fall of Rában.	ditto ...	Jnánendra Mohan Shet.	ditto ...	Printed at 333, and published at 118, Upper Chitpore Road, Calcutta.	Printed by Binod Bihari Sil, and published by Jnánendra Mohan Shet.
8486	Kalikáler Rasik Meye Bhátárpáne Dekhená Cheye. The Flirts of the Kalijuga utterly disregard their husbands.	ditto ...	Hárána Shashi De.	ditto ..	Printed at 339, Chitpore Road, and published at 19, Brindaban Basak's Lane, Calcutta.	Printed by Kaliprasanna Raya, and published by Láibihari Sen.
8487	Jayadratha Badha Játrá. A Melodrama describing the fall of Jayadratha.	ditto ...	Tinkarí Biswas.	ditto ...	ditto ditto ...	ditto ditto ...
8488	Skul mástár. The Schoolmaster.	ditto ...	Ashutosh Sen	ditto ...	Printed at 221, Cornwallis Street, and published at 50, Guruprasad Chaudhuri's Lane, Calcutta.	Printed by Matilál Mandal, and published by Ashutosh Sen.

Quarter ending 30th June 1889—continued.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
Mar., 29th	274	16mo ...	2nd ..	3,000	Printed	0 12 0	P. Ghosh, 28, Convent Road, Entally.	.....	8472
„ 10th	74	16mo ...	2nd ...	5,000	ditto ...	0 3 0	ditto ...	.....	8473
April, 10th	42	12mo dy	7th ...	2,000	ditto ...	0 2 0	Brajapati Banerji, Gauhati, Assam.	.....	8474
„ 6th	98	12mo ...	7th ...	2,000	ditto ...	0 4 0	Srinath Dé, Bogra.	.....	8475
May, 16th	98	12mo ...	8th ...	3,000	ditto ...	0 4 0	ditto ...	.....	8476
April, 10th	46	8vo dy	2nd ...	1,000	ditto ...	0 5 0	Rajeswar Gupta, Chittagong.	.....	8477
May, 5th	20	12mo dy	5th ...	500	ditto ...	0 1 3	.....	.....	8478
April, 29th	125	16mo rl	1st ...	500	ditto ...	0 8 0	G. C. Bose, 116, Bow Bazar Street, Calcutta.	"Adapted for use in elementary schools or classes in Bengal."	8479
1889. May, 13th	45	12mo ..	1st ...	1,000	ditto ...	0 4 0	.....	Contains much interesting information about the life and writings of Rámprasád Sen, a Bengali poet of the last century.	8480
April, 25th	156	9 × 6	1st ...	500	ditto ..	0 12 0	.....	The Autobiography of a Mahomedan head-constable of the Barisal Police. It is an interesting work as giving an insight into respectable Mahomedan life, and also into the working of the old and the new police systems.	8481
„ 5th	32	8vo dy...	1st ...	500	ditto ...	0 2 0	.....	Goes on with the *Sambhabaparbádhyáya* of the *Adiparba*.	8482
May, 6th	32	8vo dy...	1st ...	500	ditto ...	0 2 0	.....	ditto ditto ...	8483
„ 14th	92	12mo dy	2nd ...	1,000	ditto ...	1 0 0	Haridás Bhattácháryya, Calcutta.	Noticed	8484
April, 16th	46	12mo rl	2nd ...	1,000	ditto ...	0 8 0	Jnánendra Mohan Shet.	A mythological drama ..	8485
June, 3rd	12	12mo dy	2nd ...	1,000	ditto ...	0 0 3	Lálbiharí Sen, Calcutta.	Street literature	8486
May, 26th	48	12mo rl	Revised.	1,000	ditto ...	0 6 0	ditto ...	Based on the story of the fall of Jayadratha, the brother-in-law of Durjodhana, as given in the Mahabharata.	8187
Mar., 20th	34	12mo dy	1st ...	1,000	ditto ...	0 2 6	.....	Complains of the absolute want of discipline in some of the schools under private management in Calcutta. The managers look more to the financial success of their institutions, and sacrifice discipline, morality, and education to money.	8488

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						BENGALI
	DRAMA—*contd.*					
8489	Shashi Mukhi. (A Name)	Bengali	Siddheswar Chatterji.	Drama ...	Printed at the Gupta Press, and published at 5, Panchu Dutt's Lane, Calcutta.	Printed by Abhayacharan Gupta, and published by Harimani Dasi.
	pays everything he gets by this means to women of ill-fame. Shashimukhi, thus deserted, stung with remorse devotions gather a large number of female devotees round her, and she preaches a form of Durga worship. Her					
8490	Prabhás Jajna Játrá. A Melo-drama describing the Sacrifice at Prabhás.	ditto ...	Jiban Krishna Chatterji.	ditto ...	Printed at 6, Garanhata Street, and published at 19, Brindaban Basak's Lane, Calcutta.	Printed by Gobinda Chandra Datta, and published by Gangádhar Sil.
8491	Jagaddhátri. (A Name)	ditto ...	Haripada Chatterji.	ditto ...	Printed at 80, Muktarám Babu's Street, and published at 133, Canning Street, Calcutta.	Printed by Bagalá Charan Batabyál, and published by Haripada Chatterji.
8492	Chandrahansa. (A Name)	ditto ...	Jogendra Nath Mukharji.	ditto ...	Printed at 109, College Street, and published at 58, Patuatola Lane, Calcutta.	Printed by Umá Charan Chakrabarti, and published by Sitanáth Bhattácharyya.
	buddhi, acting under the advice of his still more wicked friend Lubdhaka. The Rani fled to the forest and pre- who banished his own son-in-law, and was the cause of the death of his daughter and of one of his wives, wanted master's son.					
8493	Golebakáali Nátak. Of Bakáwali. A Drama.	ditto ...	Kedar Nath Ganguli.	ditto ...	Printed at 68, Nimu Gosain's Lane, and published at 19, Brindaban Basak's Lane, Calcutta.	Printed by Kaliprasanna Ráya, and published by Upendra Nath Mukharji.
8494	Bharat Bilap. The Lament of Bharat.	ditto ..	ditto ...	ditto ...	Printed at 68, Nimu Gosain's Lane, and published at 326, Upper Chitpore Road, Calcutta.	Printed by Kaliprasanna Ráya, and published by Shyámlál Sil.
8495	Lampater Náke Khat. Woe to the Licentious.	ditto ..	Gaurdas Bairági.	ditto ...	Printed at 68, Nimu Gosain's Lane, and published at 5, Rammohan Saha's Lane, Calcutta.	Printed by Kaliprasanna Ráya, and published by Giridhári Bairági.
8496	Sati Nátak. A Drama describing the death of Sati.	ditto ...	Mahesh Chandra Dás De.	ditto ...	Printed at 68, Nimu Gosain's Lane, and published at 108, Upper Chitpore Road, Calcutta.	Printed by Kaliprasanna Ráya, and published by Sarat Chandra Bhattácháryya.
8497	Tarani Sen Badh Nátak. A Drama describing the Fall of Tarani Sen.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8498	Prahlád Charitra Nátak. A Drama Describing the Career of Prahlád.	ditto ...	ditto ...	ditto ...	ditto ditto ...	Printed by Kaliprasanna Ráya, and published by Devendranáth Chatterji.
8499	Sati. The Chaste One ...	ditto ...	Háridás Bhattácháryya.	ditto ...	Printed at 3, Beadon Square, and published at 37, Nimu Gosain's Lane, Calcutta.	Printed by Biharilál Dás, and published by Haridás Bhattácháryya.
8500	Golap Ful. The Rose ..	ditto ...	Hárána Shashi De.	ditto ...	Printed and published at 3, Beadon Square, Calcutta.	Printed and published by Biharilál Dás.
8501	Pándava Nirbásan Gitábhinaya. Exile of the Pandavas. An Opera.	ditto ...	Matilál Ráya...	ditto ...	Printed at 6, Balaram De's Street, and published at Bhatsálá.	Printed by H. M. Mukharji & Co., and published by Dharmadás Ráya
8502	Bijay Chandi Gitábhinaya. The Victorious Chandi. An Opera.	ditto ...	ditto ...	ditto ...	Printed at 6, Balaram De's Street, and published at 57, College Street, Calcutta.	Printed by H. M. Mukharji & Co., and published by Shri Rám Chandra Bhattácháryya.
8503	Báránasi Bilás. Sports at Banarás.	ditto ...	Nagendra Nath Ghosh.	ditto ...	Printed and published at 132, Amherst Street, Calcutta.	Printed by H. C. Datta & Co., and published by Táráprasanna Mitra.
8504	Chakshusthir Nátak. A Drama describing the condition of being stunned.	ditto ...	Kshetra Mohan Chakrabarti.	ditto ...	Printed at 54, Balarám De's Street, and published at 98-3, Chitpore Road, Garanhátá, Calcutta.	Printed by Rákhál Chandra Das, and published by Ram Kánái Dás.
8505	Mág Sarbaswa. The Henpecked Husband.	ditto ...	Ram Kánái Das	ditto ...	ditto ditto ...	ditto ditto ...

Quarter ending 30th June 1889—continued.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
May, 26th	52	12mo ...	1st ...	1,000	Printed	1 0 0	Siddheswar Chatterji and Harimani Dasi, 5, Panchu Dutt's Lane, Calcutta.	The story of a *Kulin's* daughter deserted by her husband, who marries any number of girls for money, charges an exorbitant fee for visiting them, and renounces the world, and devotes herself to the service of Durgá, who manifests herself before her. Her husband joins her followers, and they are reunited.	8489
„ 14th	48	12mo dy	3rd ...	1,000	ditto ...	0 6 0	Gangádhar Sil, Calcutta.	Often noticed	8490
„ 3rd	57	12mo dy	1st ..	1,000	ditto ...	0 4 0	.....	The story of an educated midwife, named Jagaddhátri, who remarries at the instance of her stepson at a time when nothing is known as to the whereabouts of her husband. After remarriage she leads an exceedingly dissolute life.	8491
Mar., 1st	123	8vo dy	1st ...	500	ditto ...	0 12 0	Jogendra Nath Mukharji, 58, Patuatola Lane, Calcutta.	The story of Chandrahansa, whose father, Raja Dadhimukha, was dethroned and killed by his wicked minister Dhristabuddhi, who served the life of Chandrahansa, who grew up without knowing who his father was. The wicked Dhristabuddhi, to kill Chandrahansa also, but he was not successful. He was at last compelled to abdicate in favour of his	8492
April, 24th	72	12mo rl	Revised	1,000	ditto ...	0 8 0	Upendra Nath Mukharji, Calcutta.	One of the well-known Persian tales dramatised.	8493
Mar., 5th	48	12mo rl	do. ...	1,000	ditto ...	0 6 0	Shyámlál Sil ...	.....	8494
May, 4th	18	12mo dy	1st ...	1,000	ditto ...	0 1 0	Giridhári Bairági, Calcutta.	Street literature	8495
April, 26th	96	12mo rl	Revised.	1,000	ditto ...	0 12 0	Sarat Chandra Bhattácháryya, Calcutta.	.....	8496
„ 27th	44	12mo rl	do. ...	1,000	ditto ..	0 6 0	ditto ...	.....	8497
„ 27th	48	12mo rl	do. ...	1,000	ditto ..	0 6 0	Devendranáth Chatterji, Calcutta.	.....	8498
May, 18th	20	12mo dy	1st ...	1,000	ditto ...	0 3 0	Haridás Bhattácháryya, Calcutta.	The story of a rich mofussil zemindar who attempts without success to violate the honour of a chaste lady, the wife of a poor Brahmin, living on his land,	8499
April, 13th	30	16mo dy	1st ..	1,000	ditto ...	0 2 0	Biharilál Das, Calcutta.	Golap Ful, a lady comes on board a boat from the sea without a companion. A company of girls pick her up, and she is married to Jogesh, the Prince of Gaur. She falls into the hands of dacoits, and is rescued by her husband.	8500
„ 27th	138	3vo dy	2nd ...	2,000	ditto ..	1 4 0	Matilál Raya, Bhatsálá (Burdwan).	.....	8501
Mar., 2nd	147	8vo dy	4th ...	2,000	ditto ..	1 4 0	ditto ...	A well-known work	8502
April, 26th	74	12mo dy	1st ...	500	ditto ...	0 8 0	Nagendra Nath Ghosh, Bhowanipore.	A mythological drama. Based, it appears, on Bhárat Chandra's Annadá Mangal.	8503
May, 15th	36	12mo dy	4th ...	1,000	ditto ...	0 4 0	Ram Kánai Dás ...	.....	8504
„ 10th	36	12mo ...	7th ...	1,000	ditto ...	0 2 0	ditto ...	.....	8505

CATALOGUE OF BOOKS for the Second

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI
	DRAMA—*concld.*					
8506	Gádhá O Tumi. You and Ass.	Bengali	.....	Drama ...	Printed at 3, Beadon Square, and published at 18, Banstalá Street, Calcutta.	Printed by Bihari Lál Das, and published by Matindra Nath Mukharji.
	FICTION.					
8507	Sainik Ramani. The Soldier's Wife. (T.)	ditto ...	Jogendra Nath De	Fiction ...	Printed and published at 18, Cossipore Ghât Road.	Printed by Brajagopal Shet, and published by Jogendra Náth De.
8508	Chandra Sekhar. (A Name).	ditto ...	Bankim Chandra Chatterji.	ditto ...	Printed at 23-1, Bechu Chatterji's Street, and published at 5, Pratap Chatterji's Lane, Calcutta.	Printed by Jadunáth Sil, and published by Umácharan Banerji.
8509	Turaska Upanyás. Turkish Tales. (T.)	ditto ...	Sarat Chandra Deva Sharmá.	ditto ...	Printed at 45, Maniktalá Street, and published at Narail.	Printed by Kshirod Nath Ghosh, and published by Sarat Chandra Deva Sharmá.
8510	Páhâre Meye. The Terrible Woman.	ditto ..	Priya Nath Mukharji.	ditto ..	Printed at 34, Benetola Lane, and published at 58, College Street, Calcutta.	Printed by Ashutosh Banerji, and published by Kalidás Lahiri.
8511	Galpa Kalpataru. Tritiya Kusum Shánti Kutir. The Desire-fulfilling Tree of Stories. The Third Flower. The Cottage of Peace.	ditto ...	Rajkrishna Ráya.	ditto ...	Printed at 37, Mechua Bazar Street, and published at 201, Cornwallis Street, Calcutta.	Printed by Sarat Chandra Deva, and published by Gurudás Chatterji.
8512	Galpa Kalpataru. Chaturtha Kusum. Adbhut Dakát. The Desire-Fulfilling Tree of Stories. The Fourth Flower. The Terrible Dacoit.	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
8513	Upanyás Málá. A collection of Stories. Part I.	ditto ...	R. L. Biswás	ditto ..	Printed at the Chitpore New Prákrita Press, and published at Bagbazar.	Printed by Rakhal Chandra Das, and published by R. L. Biswás.
8514	Ditto ditto. Part II.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8515	Ditto ditto. Part III.	ditto ..	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8516	Basanta Kumár. The Son of the Spring.	ditto ...	Sarat Chandra Sarkár.	ditto ...	Printed at 3, Beadon Square, and published at 37, Nimu Gosain's Lane, Calcutta.	Printed by Biharilál Das, and published by Haridas Bhattácháryya.
8517	Bángáli Meye. Bengali Girl.	ditto ...	.....	ditto ...	Printed and published at 3, Beadon Square, Calcutta.	Printed and published by Biharilál Das.
8518	Bau Kathá Kao. Speak, O Young Bride.	ditto ...	.....	ditto ...	ditto ditto ...	Printed by Bihari Lál Das, and published by Upendra Nath Mukharji.
	his wife speaking to his friend Ganesh. As a modest Hindu lady, she refuses to do so. Ganesh sees her and to shake off her bashfulness. They come to Calcutta. Gopal had a widowed sister. Ganesh wants to marry her his absence, and attempts to dishonour his wife. Unsuccessful in this, he accuses her of unchastity, and Gopal, and commits suicide. Gopal's sister accuses Ganesh of various crimes, and gets him transported for life.					
8519	Bibir Nách. The Ball ...	ditto ...	.....	ditto ...	ditto ditto ...	ditto ditto ...
	Anglicised young man, reluctantly performs the funeral ceremony of his mother according to Hindu rites, but patrimony and proceeds to Calcutta, educates his wife as an emancipated girl, and goes to preach Brahmoism his wife takes all sorts of liberties with her male friends, and becomes a proficient in the European art of and he drowns himself in the river.					

Quarter ending 30th June 1889—continued.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 21st	40	12mo dy	1st ...	1,000	Printed	0 2 0	Matindra Náth Mukharji.	This appears to be written in reply to a dramatic work entitled *Dádá O Ami* noticed in the previous catalogue	8506
The present work is designed to hold up to ridicule the Anglicised Bengali gentlemen returned from England.									
Mar., 24th	200	12mo dy	1st ...	1,000	ditto ..	1 0 0	Jogendra Náth De, Cossipore Ghát Road.	A translation of Reynolds' work entitled "The Soldier's Wife."	8507
April, 22nd	240	12mo dy	3rd ..	1,000	ditto ..	1 8 0	Bankim Chandra Chatterji, 6, Pratap Chatterji's Lane, Calcutta.	A well-known work ...	8508
Mar., 24th	184	8vo dy	1st ...	1,000	ditto ...	1 0 0	Sarat Chandra Deva Sharmá.	A translation of the Turkish Tales.	8509
April, 26th	202	32mo rl	1st ...	1,000	ditto ..	0 8 0	Kalidas Lahiri, 58, College Street, Calcutta.	The story of Trailokya, a prostitute of Calcutta, who murdered another prostitute living in the same house with her and was sentenced to death by Mr. Justice Norris	8510
Feb., 27th	116	12mo dy	1st ...	500	ditto ..	0 8 0	Sarat Chandra Deb, Calcutta.	This is the third part of a series of stories. The first two parts being, as the author says, the *Hiranmayi* and the *Kiranmayi* works, which appeared some years ago. It is a story of the	8511
happy union of the different members of the Royal Family of Amarapattana, after long separation and after the loss of their kingdom, at Pushkara, a place of pilgrimage in Rajputana.									
„ 26th	188	12mo dy	1st ...	500	ditto ...	0 10 0	Rajkrishna Ráya	This is the fourth part of the same series. The story is that of a dacoit of the Robin Hood type. Ratneswar Sinha Ráya,	8512
being deprived of his share of a rich patrimony, becomes the head of a band of dacoits. He robs rich people and supports the poor. When strong enough, he regains his inheritance and makes it over to his daughter.									
Mar., 23rd	381	8vo ...	1st ...	500	ditto ...	4 12 0	R. L. Biswás, Bagbazar.	A series of stories from a variety of sources. This part contains Persian tales and the story of Nagendra Nandini.	8513
„ 23rd	268	8vo ...	1st ...	500	ditto ...	2 4 0	ditto ...	Contains Nagendra Nandini and Ascharya Guptakathá.	8514
„ 23rd	512	8vo ...	1st ...	500	ditto ...	4 12 0	ditto ...	The Arabian Nights' Entertainments.	8515
May, 16th	217	12mo dy	1st ...	1,000	ditto ...	1 8 0	Haridas Bhattácharyya, Calcutta.	Basanta Kumar is not the most	8516
important character in the work though the writer has chosen to name the book after him. It gives a faithful picture of native family life in its various phases, and deals impartial poetical justice to all the characters concerned. The object of the work is to describe how goodness triumphs over wickedness.									
April, 25th	72	16mo dy	New...	1,000	ditto ...	0 4 0	Biharilál Das, Calcutta.	Indranáth goes to a mofussil	8517
village for the purpose of collecting subscriptions to help Babu Surendra Nath Banerji in his appeal against the sentence of imprisonment passed on him by the High Court. There he sees Saralá, and they fall in love. Indranath's father does not agree to the match, and Saralá is married to another. Saralá feels very miserable, but determines at last to devote herself to the service of her husband.									
„ 17th	24	12mo dy	New	1,000	ditto ...	0 6 0	Upendra Nath Mukharji.	Aimed at the female emancipation and widow remarriage movement. Gopal insists upon	8518
falls in love. He induces Gopal to take her to Calcutta, where the company of enlightened ladies, he said, would enable her simply to obtain an admission into the family; but the lady baffles Ganesh's intention. Ganesh then enters Gopal's room in who never liked his wife, beats her to death. Ganesh informs the police about the murder. Gopal beats Ganesh									
„ 26th	34	12mo dy	New	1,000	ditto ...	0 6 0	ditto ...	Aimed at the female emancipation movement. Kanai, an	8519
will not attend his father's sick-bed lest he be compelled to perform the same barbarous ceremony again. He sells his at Bankura. His immoral conduct there procures his expulsion from the *Samaj*. During his absence at Bankura dancing. She too is expelled from the *Samaj*. They live in misery, and in the course of time she commits suicide									

1	2	3	4	5	6	7
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						BENGALI
	FICTION—*concluded.*					
8520	Meja Bau. The Second Daughter-in-law.	Bengali	Shiba Náth Shástri.	Fiction ..	Printed and published at 13, Cornwallis Street, Calcutta.	Printed and published by K. C. Datta.
8521	Kalpataru. The Desire-fulfilling Tree.	ditto ...	Indra Nath Banerji.	ditto ...	Printed and published at 34-1, Colootola Street, Calcutta.	Printed and published by Bihari Lal Sarkar.
8522	Hátim Tai. (A Name). (T.)	ditto ...	Bijaya Náth Mukharji.	ditto ...	Printed at 147, and published at 333, Upper Chitpore Road, Calcutta.	Printed by Umesh Chandra Pal, and published by Kánáilal Sil and Brothers.
8523	Dekhle Hási Páya. The sight provokes laughter.	ditto ...	Jadunath Bhattácháryya.	ditto ...	Printed at 54, Balaram De's Street, and published at 98-3, Chitpore Road, Calcutta.	Printed by Rákhál Chandra Das, and published by Ramkánái Das.
8524	Háya ki Holo! Alas! what is this?	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8525	Saroj Pratimá. The Image of the Lotus.	ditto ...	Rádhá Binod Haldar.	ditto ...	Printed at 61, Ahiritola Street, and published at 111, Upper Chitpore Road, Calcutta.	Printed by Mahendranath De, and published by S. S. Chandra.
8526	Tárátirtha. The Temple Dedicated to Tára's Memory.	ditto ...	Rádhánáth Mitra.	ditto ...	Printed at 147, Upper Chitpore Road, and published at 141, Old China Bazar, Calcutta.	Printed by Umesh Chandra Pal, and published by Amritalal Mukharji.
	before her marriage. The scandal of her birth was hushed up by Chandra Shekhar carrying the child a woman who eked out her livelihood by needle work. On her death she fell into the hands of some bad men shopkeeper. Her mother was married to the Rája of Kanchanpore. The excellence of her needle work attract- stepson was actuated by a very different feeling, and through his agency the poor girl was kidnapped and find out the place of her confinement, and at last with the help of a *sannyási* who afterwards proved to be open Tara was mortally wounded. At her father's request a temple was dedicated to her memory named Tara.					
	HISTORY (INCLUDING GEOGRAPHY).					
8527	Káyastha Káriká O Bansábali. History and Genealogy of the Káyasthas. Part III. Nos. 68 and 69.	ditto ...	Dina Bandhu Ghatak Ishan Chandra Ghatak, and Bijaya Krishna Ghatak.	History (including Geography).	Printed at 78, Amherst Street, and published at 65, Bagbazar Street, Calcutta.	Printed by Kalicharan Das, and published by the Kayastha Kula Sanrakshini Sabha.
8528	Rajábali. The Line of Rajás. (R.)	ditto ...	Mrityunjaya Sharmá.	ditto ...	Printed at 34, and published at 52, Rajballabh's Street, Calcutta.	Printed by Nabakumar Bose, and published by Bihárilal Chatterji.
	The following works are designed for educational purposes.					
8529	Bangadesh O Asamer Samkshipta Bibaran. A short account of Bengal and Assam.	ditto ...	Dinanath Sen	ditto ...	Printed at 23-1, Bechu Chatterji's Street, and published at Gendaria, Dacca.	Printed by Jadu Náth Sil, and published by Girish Chandra Sen.
8530	Pratham Shikshá Bhugol. First Geography for Children.	ditto ...	Chandrakánta Ganguli.	ditto ...	Printed at 23-1, Bechu Chatterji's Street, and published at 148, Baranási Ghosh's Street, Calcutta.	Printed by Jadu Náth Sil, and published by the Sanskrit Press Depository.
8531	Bharat Barsher Itihás. History of British India.	ditto ...	Krishna Chandra Ráya.	ditto ...	Printed at 44, Amherst Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Biharikál Banerji, and published by the Sanskrit Press Depository.
8532	Shishu Ranjan Bharat Itihás. History of India for the entertainment of boys.	ditto ...	Dámodar Mukharji, M.R.A.S.	ditto ...	Printed and published at 6, Balaram De's Street, Calcutta.	Printed and published by H. M. Mukharji and Co.

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright or any portion of it.	Remarks.	Number
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 23rd	86	8vo dy	6th ...	1,000	Printed	0 10 0	Shiba Náth Shástri.	A well-known work	8520
Mar., 28th	191	12mo dy	3rd ...	900	ditto ..	0 12 0	Jogendra Chandra Bose, 34-1, Colootola Street, Calcutta.	A well-known work of humour .	8521
„ 5th	280	8vo dy	2nd ...	1,200	ditto ...	0 8 0	Surya Kumar Mukharji, 21, Sankar Haldar's Lane, Calcutta.	A well-known Persian tale. In making the translation the writer has consulted the Urdu, the Bengali, and the Musalmani-Bengali versions of the story.	8522
May, 12th	24	12mo dy	4th ...	1,000	ditto ...	0 2 0	Ramkánái Das ..	A humorous story. One of the Folk tales of Bengal.	8523
„ 16th	23	12mo dy	Revised	1,000	ditto ...	0 2 0	ditto ...	ditto ditto ...	8524
Mar., 25th	197	12mo dy	1st ...	1,000	ditto ...	1 10 0	S. S. Chandra, 111 Upper Chitpore Road, Calcutta.	A story of love and adventure, the materials of which have been collected from the Folk tales of Bengal, the annals of Rajputana, the stories of the Betalpanchisi, and so on.	8525
April, 12th	328	12mo dy	1st ..	1,000	ditto ...	1 8 0	Suryya Kumar Mukharji, 21, Sankar Haldar's Lane, Calcutta.	Tárá was the illegitimate daughter of Chandra Shekhar, the Minister of Subarnapore, by the Princess of that place	8526

to his mother, and himself renouncing the world. The old lady died by an accident, and Tara was taken care of by who took her to Kanchanpore, where she left their vicious company and lived under the protection of a virtuous old ed the attention of the Ráni, who sent for her, and at once conceived a great affection for her. But the Rani's kept in the custody of a prostitute. The Rajá was greatly enraged at this act of violence, and spared no pains to Tara's father, the prostitute's house was surrounded. In the scuffle that ensued at the time when the door was broken tirtha with the image of Tara enshrined in it.

Mar., 14th	48	4to rl	1st ...	500	ditto ...	0 8 0	Kayastha Kula Sanrakshini Sabhá, 65, Bagbazar Street, Calcutta.	The usual contents	8527
.....	171	8vo dy	5th ...	.....	ditto ...	1 0 0	.....	This is one of the first Bengali works in prose. It was published in 1810 for the use of the students of the Fort William College.	8528
April, 28th	72	12mo dy	4th ...	5,000	ditto ...	0 6 0	Dinanath Sen, Dacca.	A well-known school book ...	8529
Mar., 26th	32	12mo dy	15th...	5,000	ditto ...	0 1 6	Rai Radhikaprasanna Mukharji Báhádur, 30, Bechu Chatterji's Street, Calcutta.	.....	8530
„ 23rd	265	12mo ...	25th,.	3,000	ditto ...	0 12 0	Krishna Chandra Ráyá, 36, Amherst Street, Calcutta,	A well-known school book ..	8531
April, 20th	138	16mo rl	4th ...	2,000	ditto ...	0 4 0	Nabadwip Chandra Ráya, 5, Ashutosh Deb's Lane, Calcutta	.....	8532

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						BENGALI
	HISTORY (INCLUDING GEOGRAPHY)—*concld.*					
8533	Mána Chitra Shikshá. Map-pointing.	Bengali	Kishori Mohan Básu.	History (including Geography.)	Printed and published at the Syamantaka Press, Dacca.	Printed and published by Gopináth Barák.
8534	Pratham Bhág Bangálá Itiháser Prashnottara An Catechism of the History of Bengal Part I.	ditto ..	Kunja Bihari Banikya.	ditto ...	Printed and published at the Dacca Girish Press.	Printed by Munshi Kalimuddin and published by Kunja Bihari Banikya.
8535	Purábritta Sárer Prashnottara. A Catechism of Purábritta Sára.	ditto ...	Abalá Kánta Sen.	ditto ...	Printed and published at 66, Beadon Street, Calcutta.	Printed and published by Chandi Charan Ráya.
8536	Pratham Shikshá Bangálá Itiháser Prashnottara. A Catechism of the History of Bengal.	ditto ...	ditto ..	ditto ...	ditto ditto ..	ditto ditto ...
	LANGUAGE.					
	The following works are designed for educational purposes.					
8537	Barnaparichaya. An Alphabetical Primer. Part. I.	ditto ..	Ishwara Chandra Bidyáságara.	Language	Printed at 62, Amherst Street, and published at 25, Suken's Street, Calcutta.	Printed by Jajneswar Mukharji, and published by the Calcutta Library.
8538	Ditto ditto. Part II.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8539	Bodhodaya. Rudiments of Knowledge.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8540	Akhyána Manjarí. A Collection of Anecdotes. Part II.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8541	Ditto ditto Part III.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8542	Jíban Charit. Biography.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8543	Shishu Shikshá. The Infant Instructor. Part III.	ditto ...	Madan Mohan Tarkálankára.	ditto ...	ditto ditto ..	ditto ditto ...
8544	Ditto ditto. Part III.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8545	Barnajnán Knowledge of Letters.	ditto ..	Bhabání Kánta Bhattáchárryya.	ditto ..	Printed and published at Serajgunj.	Printed by Mohini Mohan Son, and published by Bhabáni Kanta Bhattácháryya.
8546	Kabitá Kusumer Artha A Key to Kabitá Kusum.	ditto ...	Umacharan Banerji.	ditto ...	ditto ditto ...	ditto ditto ...
8547	Bangíya Sabda Sár. A Bengali Dictionary.	ditto ...	Abalúkánta Son	ditto ...	Printed and published at 66, Beadon Street, Calcutta.	Printed and published by Chandi Charan Ráya.
8548	Padyasárer Sárthak Anwaya O Byákhyá. A key to Padyasára.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8549	Sáhitya Kusumer Suchára Byákhyá. A key to Sáhitya Kusum.	ditto ..	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8550	Prabandha Málár Suchára Byákhyá. A key to Prabandhamálá.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8551	Rámchariter Sucháru Byákhyá. A key to Rámcharit	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8552	Padyapáth Dwitíya Bhager Sárthak Anwaya Byákhyá O Padapari-chaya. A key to Padyapáth. Part II.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 10th	46	12mo ...	1st ...	1,000	Printed	0 2 0	.....	A work on map-pointing designed for the use of students of the vernacular schools.	8533
May, 24th	72	12mo ...	1st ..	1,000	ditto ...	0 4 0	.....	A catechism of the elementary history of Bengal by the late Babu Rajkrishna Mukharji, M.A.	8534
Mar. 6th	142	12mo rl	3rd ...	1,000	ditto ...	0 8 0	Abalá Kánta Sen, 50, Baranasi Ghosh's Street, Calcutta.	.....	8535
Feb., 28th	68	12mo rl	2nd ...	2,000	ditto ...	0 4 0	ditto ...	A catechism of the elementary history of Bengal by the late Babu Rajkrishna Mukharji, M.A.	8536
Mar., 30th	38	12mo ...	148th	50,000	ditto ...	0 1 0	Ishwara Chandra Bidyaságara, 25, Brindaban Mallik's Lane, Calcutta.	An alphabetical primer of long standing.	8537
May, 13th	43	12mo ...	137th	30,000	ditto ...	0 1 3	ditto ...	ditto ditto ...	8538
April, 11th	84	12mo ..	104th	30,000	ditto ...	0 3 0	ditto ...	A well-known school book ...	8539
„ 8th	131	12mo ..	3rd ...	5,000	ditto ...	0 6 0	ditto ...	The first part of the work has been, with some additions, divided into two parts, and this is the second part.	8540
„ 26th	180	12mo ...	18th...	5,000	ditto ...	0 8 0	ditto ...	The second part of the work has been styled the third part.	8541
Mar., 28th	144	12mo ...	14th...	5,000	ditto ...	0 8 0	ditto ...	A well-known school book ...	8542
„ 28th	51	12mo ...	102nd	25,000	ditto ...	0 2 0	ditto ...	ditto ditto ...	8543
May, 17th	51	12mo ...	103rd	25,000	ditto ..	0 2 0	ditto ...	ditto ditto ..	8544
April, 16th	8	12mo ...	1st ...	1,000	ditto ...	0 0 3	.....	An alphabetical primer ...	8545
May, 1st	9	8vo ...	1st ...	1,000	ditto ...	0 2 0	.....	A key ...	8546
Mar., 13th	343	12mo dy	2nd ...	2,000	ditto ...	0 12 0	Abalúkánta Sen, 50, Báránasi Ghosh's street, Calcutta.	Noticed	8547
Feb., 25th	62	12mo dy	1st ...	1,000	ditto ...	0 4 0	ditto ...	A key	8548
„ 22nd	230	12mo rl	1st ...	1,500	ditto ...	0 12 0	ditto ...	ditto ...	8549
„ 21st	192	12mo rl	1st ...	1,000	ditto ...	0 8 0	ditto ...	ditto ...	8550
„ 23rd	94	12mo ...	1st ...	1,000	ditto ...	0 8 0	ditto ...	ditto ...	8551
„ 23rd	108	12mo rl	2nd ...	1,000	ditto ...	0 6 0	ditto ...	ditto ...	8552

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						BENGALI
	LANGUAGE—*contd.*					
8553	Padyapáth Tritíya Bhág er Sárthak Anwaya Byákhyá O Padaparichaya. A key to Padyapáth. Part III.	Bengali.	Abalákánta Sen.	Language.	Printed and published at 66, Beadon Street, Calcutta.	Printed and published by Chandi Charan Raya.
8554	Kabitáhár Pratham Bhág er Sárthak Anwaya O Byákhyá. A key to Kabitáhár. Part I.	ditto ...	ditto ...	ditto ...	dto ditto ...	ditto ditto ...
8555	Kabigáthár Sárthák Anwaya Byákhyá O Padaparichaya. A key to Kabigáthá.	ditto ...	ditto ...	ditto ...	dito ditto ...	ditto ditto ...
8556	Rámbanabáser Sucháru Byákhyá. A key to Rambanabás.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8557	Bodhodayer Sárthak Prasnottara. A key to, and a Catechism of, Bodhodaya.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8558	Sáhitya Shikshár Sucháru Byákhyá. A key to Sáhitya Shikshá.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8559	Cháru Bodh. Entertaining knowledge. Part I.	ditto ...	Shashibhusan Chatterji.	ditto ...	Printed and published at 8, Dixon's Lane, Calcutta.	Printed and published by B. L. Chakrabarti.
8560	Bálya Shikshá. Infant Instructor.	ditto ...	Ramsundar Basak.	ditto ...	ditto ditto ...	ditto ditto ...
8561	Chárubodh Prakáshiká. A key to Chárubodh.	ditto ...	Kshetra Mohan Sen Gupta.	ditto ...	ditto ditto ...	ditto ditto ...
8562	Subjects of Examination in the Bengali language appointed by the Senate of the Calcutta University for the Entrance Examination of 1890.	ditto ...	Nilmani Mukherji, M.A.	ditto ...	ditto ditto ...	ditto ditto ...
8563	Nítipáthártha. A key to Nítipáth.	ditto ...	Umácharan Banerji.	ditto ...	Printed at 333, Upper Chitpore Road, Calcutta, and published at Serajganj. Maniharipati.	Printed by Binod Bihari Sil, and published by Umácharan Banerji.
8564	Shikshásopán Tritíya-bhágártha. A key to Shikshá Sopan. Part III.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8565	Páth Málártha. A key to Pathmálá.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8566	Prathambhág Páthamálartha. A key to Páthamálá. Part II.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8567	Shishu Bodhak. The Infant Instructor.	ditto ...	.....	ditto ...	Printed at 333, and published at 188, Upper Chitpore Road, Calcutta.	Printed and published by Binod Bihari Sil.
8568	Bodhodayer Artha Pustaka. A key to Bodhodaya.	ditto ...	Krishnadhan Bidyápati.	ditto ...	Printed and published at 117, Chipore Road, Calcutta.	Printed and published by Trailokya Náth Datta.
8569	Tritíya Bhág Shishu Shikshar Arthapustak A key to Shishu Shiksha. Part III	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8570	Shishu Bodhak. The Infant Instructor.	ditto ...	.....	ditto ...	ditto ditto ...	ditto ditto ...
8571	Ditto ditto ...	ditto ...	.....	ditto ...	Printed at 54, Balarám De's Street, and published at 98-3, Chitpore Road, Calcutta.	Printed by Rakhal Chandra Das, and published by Rámkánái Das.
8572	Nitípatha Bibodhini. A key to Nitípatha.	ditto ...	Bishnukishor Chakrabarti.	ditto ...	Printed and published at 100, Bowbazar Street, Calcutta.	Printed and published by B. C. Sarkar.
8573	Priyapáth. A Beloved Reader.	ditto ...	Lalit Chandra Mazumdar.	ditto ...	Printed and published at 2, Benetola Lane, Calcutta.	Printed and published by Natabar Chakrabartí.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
Mar., 18th	320	12mo rl	3rd ...	2,000	Printed.	0 12 0	Abalákánta Sen, 50, Baranasi Ghosh's Street, Calcutta.	A key	8553
Feb., 25th	110	12mo rl	1st ...	1,000	ditto ...	0 6 0	ditto ...	ditto ...	8554
„ 23rd	230	12mo rl	1st ...	1,000	ditto ..	0 12 0	ditto ...	ditto ...	8555
„ 22nd	199	12mo rl	2nd ...	1,000	ditto ...	0 12 0	ditto ...	ditto ...	8556
Mar., 5th	41	12mo rl	1st ...	1,000	ditto ..	0 2 0	ditto ...	ditto ..	8557
Feb., 28th	227	12mo rl	1st ...	1,000	ditto ...	0 12 0	ditto ...	ditto ...	8558
Mar., 19th	124	12mo ...	17th...	5,000	ditto ...	0 5 0	Shashibhusan Chatterji, Calcutta.	A well-known school-book ...	8559
„ 20th	58	12mo ...	42nd	20,000	ditto ...	0 1 6	Ramsundar Basak, Dacca.	ditto ditto ...	8560
„ 24th	87	12mo ...	1st ...	1,000	ditto ...	0 3 0	Kshetra Mohan Sen Gupta, Calcutta	A key	8561
„ 22nd	154	8vo ...	1st ...	1,600	ditto ...	1 8 0	Nilmani Mukharji, Calcutta.	Selected from a large number of standard Bengali works in prose and poetry.	8562
May, 19th	26	12mo rl	New...	1,000	ditto ...	0 4 0	Umácharan Banerji, Serajganj.	A key	8563
April, 22nd	26	8vo rl	New...	1,000	ditto ...	0 3 0	ditto ...	ditto ...	8564
„ 18th	13	8vo ...	New...	1,000	ditto ...	0 3 0	ditto ...	This is a key to the second part of the work.	8565
„ 14th	9	8vo dy	New...	1,000	ditto ...	0 2 0	ditto ...	A key	8566
May, 7th	108	12mo dy	11th...	1,000	ditto ...	0 4 0	.....	An old-fashioned primer ...	8567
„ 4th	12	12mo rl	New	3,000	ditto ...	0 3 0	Trailokya Nath Datta, Calcutta.	A key	8568
„ 2nd	12	12mo rl	1st ...	3,000	ditto ...	0 2 0	ditto ...	ditto ...	8569
April, 21st	120	12mo dy	Revised.	3,000	ditto ...	0 4 0	.....	An old-fashioned primer ...	8570
„ 22nd	126	12mo dy	ditto	2,000	ditto ...	0 3 0	.....	ditto ditto ...	8571
May, 11th	78	12mo dy	1st ...	500	ditto ...	0 4 0	Bishnukishor Chakrabarti, Khamarpara, Barasat.	A key	8572
April, 4th	53	12mo dy	8th ...	2,000	ditto ...	0 3 0	Lalit Chandra Mazumdar, Sakrail.	A school-book	8573

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI
	LANGUAGE—*contd.*					
8574	Pratham Charitáshtaka. The Eight Characters. Part I.	Bengali	Kálimaya Ghatak.	Language	Printed at 23-1, Bechu Chatterji's Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Jadu Náth Sil, and published by the Sanskrit Press Depository.
8575	Prathampáth. The First Reader.	ditto ...	Satkari Datta	ditto ...	ditto ditto ...	ditto ditto ...
8576	Bangálá Byákaran Prabeshiká. An Introduction to Bengali Grammar.	ditto ...	Jagadbandhu Modak.	ditto ...	ditto ditto ...	ditto ditto ...
8577	Sáhitya Prabesh. An Introduction to Literature.	ditto ..	Prasanna Chandra Bidyáratna.	ditto ..	Printed at 23-1, Bechu Chatterji's Street, Calcutta, and published at the Students' Library, Dacca.	Printed by Jadu Náth Sil, and published by the Students' Library, Dacca.
8578	Námamálá. A Garland of Names.	ditto ...	Madhu Sudan Bhattáchárya.	ditto ..	Printed at 23-1, Bechu Chatterji's Street, and published at Raghunáthganj, Moorshedabad.	Printed by Jadu Náth Sil, and published by Madhusudan Bhattáchárya.
8579	Shikshá Sopán. Step by Step in Learning.	ditto ...	Akrur Chandra Sen.	ditto ...	Printed and published at the Adarsha Press, Armanitola, Dacca.	Printed and published by Lachhman Basak.
8580	Ditto ditto ...	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8581	Sáhitya Páth. Literary Reading.	ditto ...	Manmohan Ráya.	ditto ...	ditto ditto ...	ditto ditto ...
8582	Saral Byákaran. Easy Grammar.	ditto ...	Suryya Kumar Ráya.	ditto ...	ditto ditto ...	ditto ditto ...
8583	Tritíya Bhág Akhyán Manjarí Bodhiní. A Key to Akhyán Manjari. Part III.	ditto ...	Matilal Chakrabarti.	ditto ...	ditto ditto ...	Printed by Lachhman Basák, and published by Jogesh Chandra Chakrabarti.
8584	Jibanamaya Kábya Bodhiní. A key to the work entitled Jibanamaya Kábya.	ditto ...	ditto ..	ditto ..	ditto ditto ...	ditto ditto ...
8585	Shishu Kaumudi. The Moonshine for Boys.	ditto ...	Umákánta Rakshit.	ditto ...	Printed and published at Mymensingh.	Printed and published by Umakánta Rakshit.
8586	Akhyán Manjari Tritíya Bháger Byákhyá A key to Akhyán Manjari. Part III.	litto ...	Hara Kumár Banerji.	ditto ..	ditto ditto ...	Printed by Umakánta Rakshit, and published by Mánik Chandra Bhaumik.
8587	Bodhodayer Artha O Byákhyá. A key to Bodhodaya.	ditto ...	Akshaya Kumar Chatterji.	ditto ...	Printed and published at Barisal.	Printed by Hara Kumar Kar, and published by Akshaya Kumar Chatterji.
8588	Kabitábalí Prabodhiká A key to Kabitábali.	ditto ...	Jánakí Náth Pál.	ditto ..	Printed and published at the Girish Press, Dacca.	Printed and published by Kalimuddin.
8589	Priyapátha Prabodhiká A key to Priyapátha.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8590	Saralpátha Prabodhiká A key to Saral Páth.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8591	Priyapather Bishada Byákhyá. A key to Priyapáth.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8592	Komalkabitá Prabodhiká A key to Komalkabita.	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
8593	Akhyán Manjari Prabodhiká. A key to Akhyán Manjari.	ditto ...	ditto ..	ditto ..	ditto ditto ...	ditto ditto ...
8594	Priyapáth Bibriti. A key to Priyapáth.	ditto ...	Rám Chandra Chakrabarti.	ditto ..	ditto ditto ...	Printed by Kalimuddin, and published by the Dacca Students' Library.
8595	Bodhodaya Sikshá. A key to Bodhodaya.	ditto ...	Dinabandhu Basak.	ditto ...	ditto ditto ...	Printed by Kalimuddin, and published by Dinabandhu Basak.
8596	Prathambhág Akhyán Manjarír Shabdártha. A key to Akhyán Manjari. Part I.	ditto ...	Kunjabihari Banikya.	ditto ...	ditto ditto ...	Printed by Kalimuddin, and published by Kunjabihari Banikya.
8597	Kathámálár Byákhyá Saha Artha Pustaka. A key to Kathámálá.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 10th	174	12mo dy	8th ...	2,000	Printed	0 8 0	Kálímaya Ghatak, Ranaghat, Nadia.	A school-book ...	8574
„ 10th	32	12mo dy	31st ...	10,000	ditto ...	0 1 0	Satkari Datta, Calcutta.	ditto ...	8575
„ 7th	54	12mo dy	7th ...	2,000	ditto ...	0 2 0	Jagadbandhu Modak, Gobardanga.	ditto ..	8576
May, 2nd	260	12mo dy	23rd...	2,000	ditto ...	0 12 0	Prasanna Chandra Bidyáratna, Dacca.	ditto ...	8577
April, 10th	20	12mo dy	2nd ...	3,000	ditto ...	0 1 0	Madhu Súdan Bhattácháryya, Raghunathganj, Moorshedabad.	An alphabetical primer on a new plan. The letters are to be learnt by learning the mode of writing names.	8578
„ 6th	33	12mo dy	15th .	2,000	ditto ...	0 2 0	.....	A well-known school-book ...	8579
April, 12th	92	12mo dy	2nd ...	1,000	ditto ...	0 6 0	.....	ditto ditto ...	8580
May, 31st	33	12mo ...	16th...	2,000	ditto ...	0 2 0	.....	ditto ditto ...	8581
„ 15th	92	12mo ...	11th...	1,000	ditto ...	0 4 0	.....	ditto ditto ...	8582
„ 7th	108	12mo ...	1st ...	1,000	ditto ...	0 10 0	.....	A key ...	8583
April, 6th	120	12mo ...	1st ...	1,000	ditto ...	0 12 0	.....	ditto ...	8584
„ 4th	44	12mo dy	2nd...	800	ditto ...	0 3 0	Umákánta Rakshit, Nasirabad.	Follows the plan of Sanskrit works on Grammar.	8585
Mar., 30th	46	8vo dy	1st ...	2,000	ditto ...	0 6 0	Harakumár Banerji, Hazipur, Mymensingh.	A key ...	8586
April, 13th	42	10×6 ...	1st ...	1,000	ditto ...	0 3 0	.....	ditto ...	8587
„ 21st	18	12mo ...	1st ...	1,000	ditto ...	0 2 0	.....	ditto ...	8588
„ 19th	28	12mo ...	3rd ...	1,000	ditto ...	0 3 0	.....	ditto ...	8589
„ 9th	18	12mo ...	1st ...	1,000	ditto ...	0 3 0	.....	ditto ...	8590
„ 24th	119	12mo ...	3rd ...	1,000	ditto ...	0 10 0	.....	ditto ...	8591
„ 25th	30	12mo ...	1st ...	1,000	ditto ...	0 3 0	.....	ditto ...	8592
„ 30th	40	12mo ...	3rd ...	1,000	ditto ...	0 4 0	.....	ditto ...	8593
„ 30th	108	12mo ...	1st ...	1,000	ditto ...	0 10 0	.....	ditto ...	8594
„ 3rd	88	12mo ...	1st ...	1,000	ditto ...	0 5 0	.....	ditto ...	8595
May, 25th	45	12mo ...	1st ...	1,000	ditto ...	0 4 0	.....	ditto ...	8596
„ 30th	48	12mo ...	1st ...	1,000	ditto ...	0 4 0	.....	ditto ...	8597

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						BENGALI
	LANGUAGE—*contd.*					
8598	Dwitíya Bhág Chárn Kabitár Bishada Byákhyá. A key to Chárn Kabitá. Part II.	Bengali	Gopi Mohan Datta.	Language	Printed and published at the Girish Press, Dacca.	Printed by Kalimuddin, and published by Gopi Mohan Datta.
8599	Shishu Prabesh. A Primer for Boys.	ditto ...	Prasanna Chandra Bidyáratna.	ditto ...	Printed and published at the Dacca East Bengal Press.	Printed by Nabin Chandra De, and published by the Students' Library, Dacca.
8600	Komal Kabitá Bodhini. A key to Komal Kabitá.	ditto ...	Satish Chandra Chakrabarti.	ditto ...	ditto ditto ...	Printed by Nabin Chandra De, and published by Satish Chandra Chakrabarti.
8601	Nítipáth Bikásh. A key to Nitipáth.	ditto ...	Dina Bandhu Basak.	ditto ...	ditto ditto ...	ditto ditto ...
8602	Priyapátha Bodhini. A key to Priyapátha.	ditto ...	Matilál Chakrabartí	ditto ...	ditto ditto ...	Printed by Nabin Chandra De, and published by Jogesh Chandra Chakrabarti.
8603	Bodhodaya Shikshá. A key to Bodhodaya.	ditto ...	Brajadás Bairagi.	ditto ...	Printed and published at the Dacca Press.	Printed by Digambar Das, and published by Braja Das Bairági.
8604	Akhyán Manjarí Dípiká. A key to Akhyan Manjari.	ditto ...	.....	ditto ...	Printed and published at the Dacca Oriental Press.	Printed and published by Ram Chandra Banik.
8605	Shaishaba Jnána Chandrikár Artha O Byákhyá. A key to Shaishaba Jnána Chandriká.	ditto ...	Harendra Náráyan Chakrabartí.	ditto ...	ditto ditto ...	ditto ditto ...
8606	Nítipáth. Moral Reader	ditto ...	Rájendra Mohan Datta.	ditto ...	Printed and published at the Dacca Raghunath Press.	Printed and published by Nandá Kisor Basak.
8607	Komal Byákhyá. A key to Komal Kabitá.	ditto ...	Umesh Chandra Basu.	ditto ...	ditto ditto ...	ditto ditto ...
8608	Komal Kabita Bodhini A key to Komal Kabita.	ditto ...	Kunjabihari Náth.	ditto ...	ditto ditto ...	ditto ditto ...
8609	Shikshá Sopáner Saral Artha O Byákhyá. A key to Shikshá Sopan.	ditto ...	Brajendra Mohan Datta.	ditto ...	ditto ditto ...	ditto ditto ...
8610	Shikshá Sopán Prabodhika. A key to Shikshá Sopán.	ditto ...	Jánaki Nath Pál.	ditto ...	Printed and published at the Syamantak Press, Dacca.	Printed and published by Gopináth Basak.
8611	Padya Manjari Bodhini. A key to Padya Manjari.	ditto ...	Kunjabihari Nath.	ditto ...	ditto ditto ...	Printed and published by Gopinath Basak.
8612	Chárn Kabitá Dwitíya Bháger Bishada Byákhyá.	ditto ...	.....	ditto ...	ditto ditto ...	Printed by Gopináth Raya, and published by Kunjabihari Banik.
8613	Shishu Shikshá Tritíya Bháger Prashnottara O Prabodhini Byákhyá Saha Artha Pustaka. A Key to and Catechism of Shishu Shikshá. Part III.	ditto ...	Kunjabihari Shaha Banik.	ditto ...	ditto ditto ...	Printed by Gopináth Basak, and published by Jogesh Chandra Chakrabarti.
8614	Padyajyotih Bodhini. A key to Padyajyotih.	ditto ...	Rádháballabh Chakrabarti.	ditto ...	ditto ditto ...	Printed by Gopináth Basak, and published by Jogesh Chandra Chakrabarti.
8615	Priyapátha Bikásh. A key to Priyapátha.	ditto ...	Akshaya Kumár Shiromani.	ditto ...	ditto ditto ...	Printed by Gopináth Basak, and published by the Dacca Students' Library.
8616	Padya Manjarir Bishada Artha. A key to Padya Manjari.	ditto ...	.....	ditto ...	ditto ditto ...	Printed by Gopináth Basak, and published by Kunjabihari Shaha Banik.
8617	Bodhodaya Bodh. A key to Bodhodaya.	ditto ...	Harendra Kumar Ghosh.	ditto ...	ditto ditto ...	Printed and published by Gopinath Basák.
8618	Saral Kabitábalir Byákhyá Pustak. A key to Saral Kabitábali.	ditto ...	.....	ditto ...	Printed and published at the Pubna Nababibhákar Press.	Printed by Purnánanda Ráya, and published by the Pubna School Book Depository.

Quarter ending 30th June 1889—continued.

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May, 4th	159	12mo ...	2nd ...	1,000	ditto ...	0 12 0	.....	ditto ...	8602
„ 28th	96	12mo ...	5th ...	2,000	ditto ...	0 5 0	.....	ditto ...	8603
„ 2nd	144	12mo ...	1st ...	1,000	ditto ...	0 9 0	.....	ditto ...	8604
„ 5th	36	12mo ...	1st ...	1,000	ditto ...	0 4 0	.....	ditto ...	8605
„ 4th	65	12mo ...	6th ...	2,000	ditto ...	0 4 0	.....	A school-book ...	8606
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„ 8th	24	12mo ...	1st ...	1,000	ditto ...	0 2 0	.....	ditto ...	8608
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„ 28th	24	12mo ...	9th ...	2,000	ditto ...	0 2 0	.....	ditto ...	8610
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Mar., 8th	44	12mo ...	7th ...	4,000	ditto ...	0 2 0	.....	ditto ...	8613
April, 20th	48	12mo ...	1st ...	1,000	ditto ...	0 6 0	.....	ditto ...	8614
„ 5th	108	12mo ...	1st ...	1,000	ditto ...	0 10 0	.....	ditto ...	8615
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June, 9th	72	12mo ...	3rd ...	1,000	ditto ...	0 5 0	.....	ditto ...	8617
April, 18th	60	8vo ...	1st ...	1,000	ditto ...	0 4 0	Pubna School Book Depository.	ditto ...	8618

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						BENGALI
	LANGUAGE—*contd.*					
8619	Kabitábali Chandriká. A key to Kabitábali.	Bengali	.....	Language	Printed and published at the Pubna Nababibhákar Press.	Printed by Purnánanda Raya, and published by Satish Chandra Chakrabarti.
8620	Chhátra Bandhu Byákaran. A Bengali Grammar for Children.	ditto ...	Jadunáth Bhattácháryya.	ditto ...	Printed and published at Narail.	Printed by Bishwambhar Biswas, and published by Jadunáth Bhattácháryya.
8621	Sukhapátha Bodh. A key to Sukhapáth.	ditto ...	Chandra Kumar Lahiri. Shashi Bhushan Chakrabarti.	ditto ...	Printed and published at Tangail.	Printed by Chandra Kumar Sarkár, and published by Shashi Bhushan Chakrabarti.
8622	Niti Byákhyá. A key to Niti Shikshá. Part I.	ditto ...	Shashi Bhúshan Das.	ditto ...	ditto ditto ...	Printed and published by Chandra Kumar Sarkár.
8623	Pátha Málá Dwitíya Bháger Prashnottara O Anwaya Saha Artha. A key to Páthamálá. Part II.	ditto ...	Binod Mohan Ráya.	ditto ...	Printed at the Bogra Roy Press, and published at Madlá.	Printed by Binod Bihari Banerji, and published by Binod Mohan Ráya.
8624	Akshara Parichaya. An Acquaintance with Letters. Part II.	ditto ...	Fateh Mandal	ditto ...	Printed and published at the Bogra Roy Press.	Printed by Binod Bihari Mandal, and published by Fateh Mandal.
8625	Shikshá Sopáner Artha. A key to Shikshá Sopan.	ditto ...	Krishna Kumar De.	ditto ...	Printed and published at Chittagong.	Printed by Jagat Chandra Dás, and published by Krishna Kumár Do.
8626	Shishu Shikshá Tritíya Bháger Artha Pustak. A key to Shishu Shikshá. Part III.	ditto ...	Dinakánta Chakrabarti.	ditto ...	Printed and published at the Amar Press, Komilla.	Printed and published by Nilambar Datta.
8627	Barna Bodh. A Knowledge of the Alphabet. Part II.	ditto ...	Rajanikánta Chatterji.	ditto ...	ditto ditto ...	ditto ditto ...
8628	Chárn Prabandha. Interesting Essays in Bengali.	ditto ...	Mathuránáth Barma.	ditto ...	Printed and published at 12-9, Goabagan Street, Calcutta.	Printed by Nibáran Chandra Bhattácháryya, and published by M. N. Barma.
8629	Pátha Málá Dwitíya Bháger Artha Pustak. A key to Pátha Málá. Part II.	ditto ...	Tariníkánta Mazumdar.	ditto ...	Printed and published at 13, Cornwallis Street, Calcutta.	Printed and published by Kártik Chandra Datta.
8630	Pátha Málá Pratham Bháger Artha Pustak. A key to Pátha Málá. Part I.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8631	Pátha Málá Pratham Bháger Artha Pustak. A key to Patha Málá. Part I.	ditto ...	Mukunda Lál Dás.	ditto ...	Printed at 13, Cornwallis Street, and published at Rádhánagar.	Printed by Kártik Chandra Datta, and published by Mukunda Lál Das.
8632	Dwitíya Bhág Akhyán Manjarir Artha Pustak. A key to Akhyán Manjari.	ditto ...	Suresh Chandra Mazumdar.	ditto ...	Printed at 22-2, Jhamapukur Lane, and published at 54-1, College Street, Calcutta.	Printed and published by Baradáprasád Mazumdar.
8633	Pratham Bhág Akhyán Manjarir Artha Pustak. A key to Akhyán Manjari. Part I.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8634	Dwitíya Bhág Chárn Bodher Artha Pustak. A key to Chárn Bodh. Part II.	ditto ...	Mákhan Lál Chaudhuri.	ditto ...	ditto ditto ...	ditto ditto ...
8635	Dwitiya Bhág Akhyán Manjarir Artha Pustak. A key to Akhyan Manjari. Part II.	ditto ...	Suresh Chandra Mazumdar.	ditto ...	ditto ditto ...	ditto ditto ...
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8637	Abhisheka Darpan. A key to Ramer Rájyábhisheka.	ditto ...	Harílál Sháhá	ditto ...	ditto ditto ...	ditto ditto ...

Quarter ending 30th June 1889—continued.

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Mar., 16th	34	12mo ...	1st ...	1,000	ditto ...	0 1 0	.....	An Alphabetical Primer ...	8624
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Mar., 20th	24	12mo ...	2nd ...	1,000	ditto ..	0 1 0	.....	An Alphabetical Primer ...	8627
,, 25th	168	12mo dy	2nd ...	5,000	ditto ..	0 11 0	Mathuranáth Barma, 12-9, Goabagan Street, Calcutta.	A Bengali Reader ...	8628
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,, 9th	20	12mo rl	1st ...	3,000	ditto ...	0 2 0	ditto ...	ditto ..	8630
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Mar., 29th	56	12mo ...	2nd ...	2,000	ditto ...	0 3 0	Baradáprasád Mazumdar, 22-2, Jhamapukur Lane, Calcutta.	ditto ...	8632
April, 20th	34	12mo ...	2nd ...	1,000	ditto ...	0 4 0	ditto ...	ditto ...	8633
,, 20th	84	12mo ...	2nd ...	1,000	ditto ...	0 6 0	ditto ...	ditto ..	8634
,, 25th	56	12mo ...	3rd ...	1,000	ditto ..	0 3 0	ditto ..	ditto ...	8635
,, 25th	39	12mo ...	1st ...	1,000	ditto ..	0 2 0	ditto ...	ditto ..	8636
May, 20th	230	12mo ..	1st ...	1,000	ditto ...	0 12 0	ditto ..	ditto .	8637

1	2	3	4	5	6	7
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						BENGALI
	LANGUAGE—*contd.*					
8638	Aryapáth. The Aryan Reader.	Bengali	Bireswar Pande	Language.	Printed at 24, Beadon Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Manimohan Rakshit, and published by the Sanskrit Press Depository.
8639	Aryashikshá. The Aryan Education.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8640	Arya Charit. The Aryan Characters.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8641	Barnajog O Námlikhan. Of Spelling and Writing of Names. Parts I and II.	ditto ...	Jashodá Nandan Sarkar.	ditto ...	Printed and published at 24, Beadon Street, Calcutta.	Printed and published by Manimohan Rakshit.
8642	Aryapáth Bibek. A key to Aryapáth.	ditto ...	Rameswar Banerji.	ditto ...	ditto ditto ...	ditto ditto ...
8643	Kishor Kusum. A Flower for Youth.	ditto ...	Brajamohan Dás.	ditto ...	Printed at 5, Nilmadhab Sen's Lane, Calcutta, and published at Goalpara.	Printed by A. G. Sen and Co., and published by Gopal Chandra Das.
8644	Saral Kabitá Mayir Artha. A key to Saral Kabitá Mayí.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8645	Bályapáthártha. A key to Bályapáth.	ditto ..	Matíndra Mohan Basu.	ditto ..	Printed at 5, Nilmadhab Sen's Lane, and published at 71-1, Sitárám Ghosh's Street, Calcutta.	Printed by A. G. Sen and Co., and published by Matindra Mohan Basu.
8646	Níti Shikshár Artha Pustak. A key to Niti Shikshá.	ditto ...	L. Basu ...	ditto ...	ditto ditto ...	Printed by A. G. Sen and Co., and published by L. Basu.
8647	Nítipátha Prabeshiká A key to Nitipath.	ditto	Pyári Mohan Gupta.	ditto ..	Printed at 5, Nilmadhab Sen's Lane, and published at 98, College Street, Calcutta.	Printed by A. G. Sen and Co., and published by Gobinda Chandra Sen.
8648	Byákaranánkur. A Sprout of Grammar.	ditto ..	Swarupa Chandra Raya.	ditto ...	Printed and published at 5, Nilmadhab Sen's Lane, Calcutta.	Printed and published by A. G. Sen and Co.
8649	Chárupraboudher Bíshada Byákhyá. A key to Charuprabandha.	ditto ..	Kunjabihari Banerji.	ditto ...	Printed at 84, Rájá Rájballabh's Street, and published at 176—H17, Chitpore Road, Calcutta.	Printed by Naba Kumar Basu, and published by Kunjabihari Banerji.
8650	Naba-Barna-Parichaya. A new Alphabetical Primer.	ditto .	Umesh Chandra Bhattácháryya.	ditto ...	Printed at 2, Tarak Chatterji's Lane, and published at 115, Upper Chitpore Road, Calcutta.	Printed by Naba Kumar Basu, and published by Umesh Chandra Bhattácháryya.
8651	Dwitiya Bhág Shishu Shikshár Arthapustak. A key to Shishu Shikshá Part II.	ditto ..	.....	ditto ..	ditto ditto ...	ditto ditto ...
8652	Bodhodayer Arthapustak A key to Bodhodaya.	ditto ..	ditto ...	ditto ...	ditto ditto ...	Printed and published by Umesh Chandra Bhattácháryya.
8653	Tritíya Bhág Shishu Shikshár Arthapustak. A key to Shishu Shikshá. Part III.	ditto ..	ditto ...	ditto ..	ditto ditto ..	ditto ditto ...
8654	Chárupáth. Entertaining Lessons. Part II.	ditto ...	Akshaya Kumar Datta.	ditto ...	Printed at 6, Balarám De's Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by H. M. Mukharji & Co., and published by the Sanskrit Press Depository.
8655	Patha Málá. A Bengali Reader. Part I.	ditto ..	Dámodar Mukharji.	ditto ...	Printed and published at 6, Balaram De's Street, Calcutta.	Printed and published by H. M. Mukharji & Co.
8656	Ditto ditto. Part II	ditto ..	ditto ...	ditto ..	ditto ditto ..	ditto ditto ...
8657	Sandarbha Málá. A collection of Essays.	ditto ...	Devendra Náth Mukharji.	ditto ..	Printed and published at 132, Maniktala Street, Calcutta.	Printed and published by Harihar Nandi.

Quarter ending 30th June 1889—continued.

8	9	10	11	12	13	14	15	16	17
Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
Mar., 25th	44	12mo ...	2nd ...	1,000	Printed	0 6 0	Bireswar Pande, 29, Krishna Sinha's Lane, Calcutta.	A school-book ...	8638
May, 4th	150	12mo ...	2nd ...	1,000	ditto ...	0 10 0	ditto ..	ditto ...	8639
April, 15th	88	12mo ...	7th ...	1,000	ditto ...	0 4 0	ditto ..	ditto ...	8640
„ 20th	46	16mo dy	1st ...	1,000	ditto ...	0 1 3	.....	Of simple and compound letters	8641
„ 28th	108	12mo dy	1st ...	1,000	ditto ...	0 5 0	.....	A key ...	8642
May, 7th	36	12mo ..	1st ...	1,000	ditto ...	0 3 0	Brajamohan Das, Goalpara.	Easy lessons suited to boys of tender years.	8643
„ 5th	24	12mo ...	1st ...	1,000	ditto ...	0 2 0	Brajamohan Das	A key ...	8644
„ 15th	24	12mo ...	1st ...	1,000	ditto ...	0 4 0	Matíndra Mohan Basu, 71-1, Sítáram Ghosh's Street, Calcutta.	ditto ...	8645
„ 25th	24	12mo ...	1st ...	1,000	ditto ...	0 3 0	L. Basu, 71-1, Sítáram Ghosh's Street, Calcutta.	ditto ..	8646
„ 10th	48	12mo ...	1st ...	1,000	ditto ..	0 4 0	Gobinda Chandra Sen, 98, College Street, Calcutta.	ditto ...	8647
April, 30th	72	12mo ...	11th...	3,000	ditto ...	0 3 6	Swarup Chandra Raya.	A well-known work on Bengali Grammar.	8648
May, 15th	68	12mo dy	1st ...	1,000	ditto ...	0 4 0	Kunjabihari Banerji, 176—H17, Chitpore Road, Calcutta	A key	8649
„ 2nd	22	12mo dy	8th ...	1,000	ditto ..	0 1 0	Umesh Chandra Bhattácháryya. Calcutta.	.....	8650
„ 5th	9	12mo dy	3rd ..	1,000	ditto ...	0 1 3	ditto ..	A key	8651
„ 2nd	21	12mo rl	10th...	1,000	ditto ..	0 3 0	ditto ...	ditto	8652
„ 6th	19	12mo rl	9th ...	1,000	ditto ...	0 2 0	ditto ..	ditto	8653
Mar., 22nd	135	12mo ..	27th..	10,000	ditto ..	0 8 0	Biráj Mohin Dási, Nimta, 24-Parganas.	A well-known school book ...	8654
April, 15th	58	16mo FS	6th ...	2,000	ditto ...	0 2 0	Navadwip Chandra Ráya, 5, Ashutosh De's Lane, Calcutta	ditto ditto ..	8655
„ 16th	92	16mo FS	11th ...	2,000	ditto ..	0 3 0	ditto ...	ditto ditto ...	8656
„ 7th	82	12mo dy	1st ..	1,000	ditto ..	0 6 0	S. B. Basu 13, Shibnarayan Das's Lane, and D. N. Mukharji, 48, Guruprasad Chaudhuri's Lane, Calcutta	ditto ditto ...	8657

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI
	LANGUAGE—*contd.*					
8658	Nútan Dwitíya Bhág Akhyánamanjarír Sucháru Byákhyá. A key to new Akhyánamanjarí. Part II.	Bengali	Kalidás Ghosh.	Language	Printed at 23, Jugal Kishor Das' Lane, and published at 54-1, College Street, Calcutta.	Printed by Udaya Charan Pal, and published by Purna Chandra Basu.
8659	Nabapátha. New Lessons. Part II.	ditto ...	Kalikrishna Bhattácháryya.	ditto ..	Printed and published at 24, Grish Bidyaratna's Lane, Calcutta.	Printed by Shashi Bhushan Bhattácháryya, and published by Harish Chandra Kabiratna.
8660	Ditto ditto. Part I	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8661	Bangálá Byákarana. A Bengali Grammar.	ditto ...	Tárini Sankar Sanyal.	ditto ...	ditto ditto ...	Printed and published by Sashi Bhushan Bhattácháryya.
8662	Nitipáth. Moral Reader.	ditto ...	Rájendra Mohan Datta.	ditto ..	Printed at 24, Girish Bidyáratna's Lane, and published at the Dacca Students' Library.	Printed by Sashi Bhushan Bhattácháryya, and published by the Students' Library, Dacca.
8663	Pratham Bhág Saral Kabitábalir Byákhyá. A key to Saral Kabitabali. Part I	ditto ...	Jadab Chandra Goswami.	ditto ..	Printed at 44, Amherst Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Biharilal Banerji, and published by the Sanskrit Press Depository.
8664	Padya Chandriká. A key to Padyapáth. Part III.	ditto ..	.....	ditto ..	ditto ditto ...	ditto ditto ...
8665	Kabitá Kusum Bodhini. A key to Kabitá Kusum.	ditto ..	L. Basu ..	ditto ..	Printed at 14, Mirjafar's Lane, and published at 71-1, Sitarám Ghosh's Street, Calcutta.	Printed by P. N. Biswas, and published by L. Basu.
8666	Ditto ditto ...	ditto ...	ditto ..	ditto ..	ditto ditto ..	ditto ditto ...
8667	Páth Málártha. A key to Páth Málá. Part II.	ditto ...	Matíndra Mohan Basu.	ditto ..	ditto ditto ..	Printed by P. N. Biswas, and published by Matíndra Mohan Basu.
8668	Ditto ditto. Part II	ditto ...	ditto ..	ditto ...	ditto ditto ..	ditto ditto ...
8669	Ditto ditto. Part I	ditto ..	Tarip Muhammad Mandal.	ditto ..	Printed at 14, Mirjafar's Lane, and published at Nowgong.	Printed by P. N. Biswas, and published by Tarip Muhammad Mandal.
8670	Nitipátha Subodhiní A key to Nitipatha.	ditto ...	Rajendra Kumar Basu.	ditto ..	Printed at 14, Mirjafar's Lane, and published at 55, College Street, Calcutta.	Printed by P. N. Biswas, and published by M. M. Mazumdar.
8671	Rájyábhishek Prakashiká. A key to Rámer Rajyábhishek.	ditto ...	Kshetra Mohan Sen Gupta Bidyáratna.	ditto ...	Printed and published at 92, Bowbazar Street, Calcutta.	Printed and published by Kishori Mohan Sen.
8672	Kabitá Kaumudí Pratham Bháger Artha O Bishada Byákhyá.	ditto ...	Atul Chandra Chakrabartí.	ditto ...	Printed at 221, Cornwallis Street, and published at Islampore, Dacca.	Printed by Abhaya Charan Gupta, and published by Atul Chandra Chakrabartí.
8673	Nitipátha Chandriká. A key to Nitipatha.	ditto ...	Prasanna Kumar Pandit.	ditto ..	Printed at 2, Nawabdi Ostagar's Lane, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Pítambar Banerji, and published by the Sanskrit Press Depository.
8674	Padyapátha Chandriká. A key to Padyapátha. Part I.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8675	Jíban Charit Bodhiní. A key to Jiban Charit.	ditto ...	L. Bose ...	ditto ...	Printed at 5, Nilmadhab Sen's Lane, and published at 71, Sitárám Ghosh's Street, Calcutta.	Printed by A. G. Sen and Company, and published by L. Bose.
8676	Jnánánkur. The Sprout of Knowledge. Part III.	ditto ...	Dr. Bhárat Chandra Banerji.	ditto ...	Printed and published at 46, Panchánantala Lane, Calcutta.	Printed and published by Sannyal and Company.
8677	Shishu Shikshá Tritíya Bhager Shabdártha. A key to Shishu Shikshá. Part III.	ditto ...	Srinath Bhattácharya.	ditto ...	ditto ditto ..	ditto ditto ...

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or litho. graphed.	Price at which the book is sold to the public	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 15th	40	12mo dy	2nd ...	2,000	Printed	0 4 0	Purna Chandra Basu, 54-1, College Street, Calcutta.	A key	8658
Mar., 14th	120	12mo dy	4th ..	1,000	ditto ...	0 4 0	Kalikrishna Bhattácháryya, Harinabhi.	A school book	8659
,, 29th	96	12mo dy	9th ..	2,000	ditto ...	0 3 0	ditto	ditto	8660
May, 18th	96	12mo dy	8th ...	5,000	ditto ...	0 4 0	Tarini Sankar Sanyal, Salap. Pubna.	ditto	8661
April, 28th	72	12mo dy	6th ...	2,000	ditto ..	0 4 0	Rajendra Mohan Datta, Dacca.	ditto	8662
,, 30th	28	12mo ...	1st ...	2,000	ditto ...	0 3 0	Jadab Chandra Goswami, Pubna.	A key	8663
Mar., 29th	207	12mo ...	2nd ...	2,000	ditto ...	0 10 0	Abinásh Chandra Mukharji, Belpukuria, Nuddea.	ditto	8664
May, 5th	32	12mo dy	1st ...	1,000	ditto ...	0 3 0	L. Basu, 71-1, Sitaram Ghosh's Street, Calcutta.	ditto	8665
June, 8th	32	12mo dy	2nd ..	1,000	ditto ...	0 3 0	ditto ...	ditto	8666
April, 1st	35	12mo dy	1st ..	1,000	ditto ...	0 4 0	Matindra Mohan Basu, 71-1, Sitaram Ghosh's Street, Calcutta.	ditto	8667
May, 6th	35	12mo dy	2nd ...	1,000	ditto ...	0 4 0	ditto ...	ditto	8668
April, 9th	14	12mo dy	1st ...	1,000	ditto ...	0 3 0	Tarip Muhammad Mandal, Nowgong.	ditto	8669
May, 5th	70	12mo dy	1st ...	1,000	ditto ...	0 5 0	M. M. Mazumdar, 55, College Street, Calcutta.	ditto	8670
April, 22nd	136	12mo dy	1st ...	2,000	ditto ..	0 8 0	Kshetra Mohan Sen Gupta, 34-1, Suri's Tank Lane, Calcutta.	ditto	8671
May, 5th	31	8vo ...	1st ...	1,000	ditto ...	0 4 0	Iswara Chandra Chatterji, 49, Bansitala Street, Calcutta.	ditto	8672
April, 5th	48	12mo ...	1st ..	2,000	ditto ...	0 3 0	Prasanna Kumar Pandit, Belpukur, Nadia.	ditto	8673
,, 5th	49	12mo ...	1st ...	1,000	ditto ...	0 2 0	ditto ..	ditto	8674
,, 25th	92	12mo ...	1st ...	1,000	ditto ...	0 8 0	L. Bose, 71-1, Sitárám Ghosh's Street, Calcutta.	ditto	8675
Mar., 26th	94	12mo dy	2nd ...	2,000	ditto ..	0 4 0	Bhárat Chandra Banerji, Dacca.	A school-book	8676
May, 7th	20	12mo dy	3rd ...	3,000	ditto ...	0 1 6	Srinath Bhattácháryya, Mymensingh.	A key	8677

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI
	LANGUAGE—*concld.*					
8678	Byákaran Manjúshá. A Grammatical Chest.	Bengali	Umesh Chandra Gupta.	Language	Printed at 46, Panchánantalá Lane, Calcutta, and published at Mymensingh.	Printed by Sannyal and Company, and published by Srináth Bhátta-cháryya.
8679	Rámer Rájyábhisheker Sahháru Byákhyá. A key to Rámer Rajyábhisheka.	ditto ..	Káliprasanna Bidyáratna.	ditto ...	Printed at 30, Fakir Chand Chakrabarti's Lane, and published at 115, Chitpore Road, Calcutta.	Printed by Naba Kumár Basu, and published by Umesh Chandra Bhattá-cháryya.
8680	Saral Shishu Shikshá Pratham Bhág. New Shishu Shikshá. Part I.	ditto ...	.....	ditto ...	Printed at 68, Nimu Gosain's Lane, and published at 108, Upper Chitpore, Road, Calcutta.	Printed by Kaliprasanna Raya, and published by Sarat Chandra Bhattá-cháryya.
	LAW.					
8681	Miunisipyál Byabasthá Darpan. The Mirror of Municipal Provisions. (T.)	ditto ...	Bihari Lal Mitra.	Law ...	Printed and published at 7, Thakurdas Palit's Lane, Calcutta.	Printed and published by Haridas De.
	MEDICINE.					
8682	Homiopyáthi Mate Griha Chikitsá. A Homœopathic Treatise on Domestic Medicine.	ditto ...	Jagadish Chandra Lahiri.	Medicine, E.	Printed at 109, and published at 101, College Street, Calcutta.	Printed by Umácharan Chakrabartí. and published by Lahiri and Company.
8683	Bángálá Gárhasthya Chikitsá. A Treatise on Domestic Medicine according to the Ayurvedic System.	ditto ...	Satya Charan Barát.	Medicine, N.	Printed at 22-2, Jhamapukur Lane, and published at 54-1, College Street, Calcutta.	Printed by Baradaprasád Mazumdar, and published by the Anglo-Vernacular Depository.
8684	Bhaishajya Sára. Abstract of Materia Medica.	ditto ..	Mahendra Nath Gupta.	Medicine, E.	Printed at 7, Thakurdas Palit's Lane, and published at the Campbell Medical School, Calcutta.	Printed by Haridas De, and published by Mahendra Nath Gupta.
8685	Sabirám O Aparápar Jwara O Anusangik Roger Bhaishajyaguna Sangraha. A Materia Medica of Intermittent and other Fevers and their concomitant complications.	ditto ...	Kali Krishna Mitra.	ditto ..	Printed at 132, Amherst Street, and published at 1, Upper Circular Road, Calcutta.	Printed by H. C. Datta and Company, and published by L. V. Mitra and Company.
8686	Pármákopiyá. Homiopethik Kramaprastuta Paddhati. The Process of Preparing Dilutions of Homœopathic Medicines.	ditto ...	Kishori Mohan Mukharji.	ditto ..	Printed and published at 4, College Square, Calcutta.	Printed and published by Nibáran Chandra Ghosh.
	MISCELLANEOUS.					
8687	Adbhut Juyáchuri Shikshá Excellent Training in the Art of Cheating.	ditto ...	Durgádás Lahiri.	Miscellaneous.	Printed at 34, Beniatola Lane, and published at 58, College Street, Calcutta.	Printed by Ashutosh Banerji, and published by Kalidas Lahiri.
8688	Shikshá Dán Bidhá. The Method of Imparting Instruction.	ditto ...	Hárán Chandra Chakrabarti.	ditto ..	Printed at 3, Beadon Square, and published at Jalpaiguri.	Printed by Biharilal Das, and published by Hárán Chandra Chakrabarti.
8689	Bhoj Bidyá. Magic ..	ditto ..	.....	ditto ..	Printed and published at 3, Beadon Square, Calcutta.	Printed and published by Biharilal Das.
8690	Náná Tattwa. A Variety of Subjects.	ditto ...	.....	ditto ..	ditto ditto ..	Printed by Biharilal Das, and published by Upendra Nath Mukharji.
8691	Bárat Ramaní. Indian Females.	litto ..	Manmatha Nath Datta.	ditto ..	ditto ditto ..	ditto ditto ...

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 28th	228	12mo dy	9th ...	3,000	Printed	0 10 0	Srinath Bhattácháryya, Mymensingh.	A well-known Bengali Grammar	8678
May, 17th	140	12mo dy	1st ..	1,000	ditto ...	1 0 0	Umesh Chandra Bhattácháryya, Calcutta.	A key	8679
„ 7th	32	12mo dy	1st ...	1,000	ditto ...	0 1 0	Sarat Chandra Bhattácháryya, Calcutta.	An Alphabetical Primer ...	8680
April, 22nd	236	8vo dy ...	1st ...	1,000	ditto ...	1 0 0	Biharilal Mitra, 34, Kalidas Sinha's Lane, Calcutta.	A Bengali translation of the Calcutta Municipal Consolidation Act II (B.C.) of 1888 with indices.	8681
Mar., 5th	190	12mo fc	2nd ...	1,500	ditto ..	0 8 0	Lahiri and Company, 101, College Street, Calcutta.	An enlarged and improved edition.	8682
May, 20th	362	12mo ...	1st ...	1,000	ditto ...	2 0 0	Baradaprasád Mazumdar, 22-2, Jhamapukur Lane, Calcutta.	Symptoms of diseases, their treatment, diet regulation, the method of feeling the pulse, &c.	8683
April, 2nd	352	8vo dy..	3rd ..	500	ditto ...	3 8 0	Mahendra Nath Gupta, 9, Mirzapore 2nd Lane, Calcutta.	.....	8684
May, 3rd	236	8vo dy...	1st ...	500	ditto ...	2 8 0	Kalikrishna Mitra, Barasat.	A Homœopathic treatise on intermittent and other fevers.	8685
Feb., 29th	72	8vo dy..	1st ...	1,000	ditto ...	1 0 0	Kishori Mohan Mukharji, 34, College Street, Calcutta.	The title explains the object of the work.	8686
April, 24th	258	32mo rl	1st ...	1,000	ditto ...	0 8 0	Durga Dás Lahiri	Sensational stories of cheating reprinted from the organ of the "Committee of Enquiry."	8687
„ 15th	37	12mo dy	1st ...	1,000	ditto ...	0 5 0	Háran Chandra Chakrabarti, Jalpaiguri.	For the use of the *gurus* of primary schools in Bengal. The object of the work is to teach the *gurus* how best to impart instruction to young lads in the various branches of knowledge.	8688
„ 18th	66	12mo dy	3rd ..	1,000	ditto ...	1 0 0	Upendra Nath Mukharji, Calcutta.	Noticed	8689
„ 26th	38	16mo dy	New...	1,000	ditto ..	0 2 0	ditto ...	The preparation of various articles of luxury, prescriptions for the cure of a variety of diseases, &c.	8690
„ 27th	60	12mo dy	New..	1,000	ditto ...	0 8 0	ditto ...	Contains accounts of Sitá, Satí, Draupadí, Damayantí, and Sábitrí.	8691

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI
	MISCELLANEOUS—*contd.*					
8692	Shuka Bilás. The Sports of the Parrot.	Bengali	Nanda Kumár Kabiratna.	Miscellaneous.	Printed at 323, Chitpore Road, and published at 40, Garanhata Street, Calcutta.	Printed by Tinkari Biswás, and published by P. Ghosh.
8693	Sangíta Ságar. An Ocean of Songs.	ditto ...	Aghor Chandra Ghosh.	ditto ...	ditto ditto ...	ditto ditto ...
8694	Náritattwa. A Treatise on Females.	ditto ...	Baradákánta Mazumdár.	ditto ...	Printed at 2, Nawabdi Ostagar's Lane, and published at 1, Upper Circular Road, Calcutta.	Printed by Pitámbar Banerji, and published by L. V. Mitra and Company.
8695	Go Tattwa. A Treatise on Cattle. (T.)	ditto ...	Rájá Shashi Shekhareshwar.	ditto ...	Printed at 3, Maniktala Street, and published at Tahirpore, Rajshahi.	Printed by Nagendra Nath Bose, and published by the Tahirpore Krishi Office.
8696	Manihári. Miscellaneous Goods.	ditto ...	Praphulla Chandra Banerji.	ditto ...	Printed at 34-1, Colootola Street, and published at 201, Cornwallis Street, Calcutta.	Printed by Bihari Lál Sarkár, and published by Gurudás Chatterji.
	and functions of the faculty of reason, renunciation of the world, national degradation, &c. It contains a					
8697	Átma Rakshár Mula Mantra. The First Principles of Self-preservation.	ditto ...	Sarat Chandra Chaudhuri.	ditto ...	Printed and published at 92, Bowbazar Street, Calcutta.	Printed and published by Kisori Mohan Sen.
	can be easily had: food is not so easily to be had; therefore the writer advises people to lay by something every					
8698	Sáttvik Sangít. Religious Songs.	ditto ...	Bipin Bihari Sen.	ditto ...	ditto ditto	ditto ditto ...
8699	Stri Rahasya. Female Mystery.	ditto ...	Rádháranjan Shaha.	ditto ...	Printed and published at Kumarkhali.	Printed by Satish Chandra Mazumdar, and published by Amrita Lál Mazumdar.
8700	Kángál Fikirchand Fakirer Gítabalí. Songs by the Poor Mendicant Fikir Chánd.	ditto ...	Hárinath Mazumdar	ditto ...	ditto ditto ...	Printed and published by Satish Chandra Mazumdar.
8701	Beshyá Shástra. The Science of Prostitution	ditto ...	Mukundalal Chatterji.	ditto ...	Printed at 153, Cornwallis Street, and published at 8-1, Colootola Street, Calcutta.	Printed by G. C. Chakrabarti, and published by Hitlál Chatterji.
	the sterner sex, their relations with the police, and the methods resorted to for the purpose of increasing their					
8702	Gítábataraniká. An Introduction to Songs.	ditto ...	Chandra Shekhar Bhattácháryya.	ditto ...	Printed and published at Berhampore.	Printed by Sri Chandra Ráya, and published by Radhiká Náth Mukharji.
8703	Tripurá Lon Apish, Limiteder Niyamábali. Rules of the Tippara Loan Office, Limited.	ditto ...	.....	ditto ...	Printed and published at Komillah.	Printed and published by Nilambar Datta.
8704	Sukha Ságara. The Ocean of Bliss.	ditto ...	.....	ditto ...	Printed and published at 3, Beadon Square, Calcutta.	Printed by Biharilál Das, and published by Upendranáth Mukharji.
8705	Mahájani Gáid. The Money-lenders' Guide.	ditto ..	Durgácharan Bhaumik.	ditto ...	Printed and published at Bhowanipore.	Printed and published by Nabin Krishna Mukharji.
8706	Spensár Sáheber Belun Bihár. The Balloon Adventures of Mr. Spencer.	ditto ..	.....	ditto ...	Printed and published at 1, Nimu Gosain's Lane, Calcutta.	Printed and published by Mákhanlal Ghosh.
8707	Trináther Páncháli. Metrical Recitations in honour of Trináth.	ditto ...	Nandalál Raya	ditto ...	Printed at 2, Tarak Chatterji's Lane, and published at 115, Chitpore Road, Calcutta.	Printed and published by Umesh Chandra Bhattácháryya.

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
June, 3rd	11½	12mo rl	1st ...	1,000	Printed	0 4 0	.....	Legends about Bikramáditya arranged in the form of a continuous poem by Nanda Kumár Kabiratna, who wrote at Calcutta during the middle of this century.	8692
Jan., 19th	867	12mo dy	1st ...	500	ditto ...	2 0 0	Panchánan Ghosh, Calcutta.	The book contains seven distinct works, all of which were published before and noticed in this catalogue.	8693
April, 25th	175	12mo ..	1st ..	500	ditto ...	0 12 0	Baradakánta Mazumdar, 20, Guruprasád Chaudhuri's Lane, Calcutta.	One of a class of works which are now becoming numerous, and which, while professing to treat of the health, culture, &c., of women, indulge in prurient descriptions.	8694
Mar., 30th	127	16mo dy	1st ...	3 000	ditto ...	.....	Raja Shashi Shekhareswar, Tahirpore.	A translation of Dr. Hallen's manual of the cattle diseases in India.	8695
„ 15th	377	8vo dy	1st ...	700	ditto ...	1 10 0	Jogendra Chandra Basu, 34-1, Colootola Street, Calcutta.	A collection of miscellaneous essays, mostly on weighty subjects, such as the duties of man, the religion of man, the utility	8696
literal translation of a few chapters of Carlyle's Sartor Resartus and some thoughts on the Bengali poets.									
April, 22nd	24	12mo dy	1st ...	1,000	ditto ...	0 1 0	Sarat Chandra Chaudhuri, Puntea.	Lays stress on the necessity of keeping air, water and food pure and uncontaminated by foul substances. Air and water	8697
now and then to serve them in times of scarcity and famine.									
„ 25th	98	12mo dy	1st ...	1,000	ditto ...	0 12 0	Bipin Bihari Sen, 24, Bechu Chatterji's Street, Calcutta.	A collection of songs composed by the author on a variety of occasions, and on a variety of subjects mostly religious.	8698
May 13th	23	dy ...	1st ...	500	ditto ...	0 2 0	Amritalál Mazumdar, Kumarkhali.	An essay on the relation between man and woman.	8699
April 8th	12	dy ..	1st ...	1,000	ditto ...	0 1 0	Harináth Mazumdar, Kumarkhali.	Songs written in homely language containing beautiful sentiments and noble instruction.	8700
June, 1st	80	12mo dy	1st ...	1,000	ditto ...	0 8 0	Mukundalál Chaudhuri, 8-1, Colootola Street, Calcutta.	A work on prostitutes, their mode of living, their manner of attracting customers, their quarrels, their relations with	8701
strength. Though not positively obscene, it is full of prurient descriptions.									
May, 8th	12	8vo ...	1st ..	700	ditto ...	0 1 6	.....	Original songs on religious subjects.	8702
April, 29th	48	8vo dy	1st ...	500	ditto ...	0 2 0	.....	.....	8703
April, 25th	232	12mo dy	New..	1,000	ditto ...	2 0 0	Upendranáth Mukharji.	A number of essays on the acquisition of physical, mental, moral, social and domestic happiness.	8704
June, 1st	56	8vo dy	1st ..	500	ditto ...	0 4 0	Durgácharan Bhaumik, Bhawanipore.	Contains notes on the method of making advances of money, the forms of bonds and hand notes, mortgage deeds, &c., and the method of calculating interest.	8705
April, 11th	9	12mo dy	1st ...	1,000	ditto ..	0 0 3	.....	The title explains the object of the work.	8706
May, 3rd	9	12mo dy	2nd ...	1,000	ditto ...	0 1 0	Umesh Chandra Bhattácháryya.	Noticed ..	8707

1	2	3	4	5		7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI
	MISCELLANEOUS—*contd.*					
8708	Sangíta Kantha Málá A Necklace of Songs.	Bengali	Matilál Sil ...	Miscellaneous.	Printed at 1, Garanhata Street, and published at 19, Brindaban Basak's Lane, Calcutta.	Printed by Gobinda Chandra Datta, and published by Hridayalál Sil.
8709	Debaganer Marttye Agaman. The Advent of Gods on earth.	ditto ...	Durgácharan Ráya.	ditto ...	Printed at 21, Sitárám Ghosh's Street, and published at 54, College Street, Calcutta.	Printed by Shashi Bhúshan Datta, and published by Bhupendra Kumar Kabiratna.
8710	Jamidári Káryya Sambandhiya Niyamábali. Rules regulating zemindari business.	ditto ...	Rájá Suryya Kánta Acharyya.	ditto ...	Printed and published at 46, Panchanan Tala Lane, Calcutta.	Printed and published by Sanyal and Company.
8711	Gagane Chánder Hát and Meghadutádi Granthábali. A number of works such as Gagane Chánder Hát, Meghaduta, &c.	ditto ...	K. P. Bidyaratna and others.	ditto ...	Printed at Chitpore, and published at Simla, Calcutta.	Printed by Rakhal Chandra Das, and published by Surendranath Sharmá.
8712	Galpa Swalpa. Stories, &c.	ditto ...	Swarna Kumári Debi.	ditto ...	Printed and published at 55, Chitpore Road, Calcutta.	Printed and published by Kálidás Chakrabarti.
8713	Prithibir Adi Samayer Sankshipta Bibaran. A Short Account of the Early Period of Earth's existence.	ditto ...	Jogendra Chandra Sen.	ditto ..	Printed at 55, Chitpore Road, and published at Jorasanko, Calcutta.	Printed by Kálidás Chakrabarti, and published by Jogendra Chandra Sen.
8714	Sahadharmini. The Partner in Religious Merit.	ditto ...	Suryyakánta Dvivedi.	ditto ...	Printed and published at 54—2-1, Grey Street, Calcutta.	Printed and published by Girish Chandra Ghosh.
8715	Brihat Baul Sangita. A Large Recension of the Baul Songs.	ditto ...	Binod Bihari Sil.	ditto ...	Printed at 333, Upper Chitpore Road, and published at 19, Brindaban Basak's Lane, Calcutta.	Printed by Binod Bihari Sil, and published by Kánáilal Dhar.
8716	Adrishta Parikshá. An Examination of Fate.	ditto ...	Jnánendra Mohan Set.	ditto ..	Printed at 333, and published at 118, Upper Chitpore Road, Calcutta.	Printed by Binod Bihari Sil, and published by the Author.
8717	Granthábali. The complete works of Babu Rájkrishna Ráya. Vol. IV. Part II.	ditto ...	Rajkrishna Ráya.	ditto ...	Printed and published at 37, Mechua Bazar Street, Calcutta.	Printed and published by Sarat Chandra Deva.
8718	Ditto ditto. Vol. IV. Part III.	ditto ...	ditto ...	ditto ...	Printed at 37, Mechua Bazar Street, and published at 201, Cornwallis Street, Calcutta.	Printed by Sarat Chandra Deba, and published by Gurudás Chatterji.
	The following works are designed for educational purposes.					
8719	Jamidári Mahájani O Bajár Hisáb. Zemindari, Mahajani and Bazar Accounts.	ditto ...	Nrisinha Chandra Mukharji, M.A., B.L.	ditto ..	Printed and published at 8, Dixon's Lane, Calcutta.	Printed and published by B. L. Chakrabarti.
8720	Bibidha Shikshá. Miscellaneous Instructions.	ditto ...	Ram Sundar Basak.	ditto ...	ditto ditto ...	ditto ditto ...
8721	Patra Likhibár Páth. Letter Writer.	ditto ...	Prasanna Bidyáratna.	ditto ...	Printed and published at the Dacca Raghunath Press.	Printed and published by Nanda Kishor Basak.
8722	Anka Shikshá. Instruction in Arithmetic.	ditto ...	Mathurá Nath Guha.	ditto ...	Printed and published at the Syamantak Press, Dacca.	Printed by Gopináth Basák, and published by Mathurá Náth Guha.
8723	Práimári Parikshá. Primary Examination.	ditto ...	Gangá Dás Sháhá.	ditto ...	Printed at 23-1, Bechu Chatterji's Street, and published at 148, Báránasi Ghosh's Street, Calcutta.	Printed by Jadu Náth Sil, and published by the Sanskrit Press Depository.
8724	Páthsálá Pátiganit. Arithmetic for Páthsálás.	ditto ...	Brajendra Kumár Guha.	ditto ...	Printed and published at 46, Panchánantala Lane, Calcutta.	Printed and published by Sánnyál and Company.

Quarter ending 30th June 1889—continued.

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BOOKS—continued:									
1889.	Pages.					Rs A. P			
May, 27th	96	12mo dy	1st ...	1,000	Printed	0 6 0	Hridayalál Sil, Calcutta.	A collection of songs on a variety of subjects, mostly love songs.	8708
„ 2nd	630	8vo dy	1st ...	1,000	ditto ...	4 0 0	Durgácharan Ráya, 80, Mir Jaffer's Lane, Calcutta.	Reprinted from the Kalpa Druma Magazine, now defunct. Hindu gods and goddesses have been represented as taking a railway trip all over India about the year 1880, taking notes of what they saw and making shrewd remarks on the passing events of the day.	8709
„ 11th	170	4to crown.	1st ...	8vo ...	ditto ..	.....	Rajá Surya Kanta Acharyya Chaudhuri.	For the guidance of officers engaged in conducting the zemindari affairs of Rajá Suryya Kanta Acharyya Chaudhuri.	8710
Mar., 15th	613	12vo ...	3rd ...	500	ditto ...	3 12 0	K. P. Bidyáratna and others, Mallikpore, Jessore.	The books have all been separately noticed in previous catalogues. These bound together form the present volume.	8711
„ 12th	100	12mo dy	1st ...	1,000	ditto ...	0 8 0	Swarna Kumári Debi, Kasiabagan Garden House, Calcutta.	Essays, stories, and short poems written by the authoress	8712
May, 8th	42	8vo rl ...	1st ..	500	ditto ...	1 0 0	Jogendra Chandra Sen, Jorasanko, Calcutta.	The work is said to have been written by the son and grandson of the first progenitor of the world.	8713
April, 4th	32	12mo dy	1st ...	1,000	ditto ...	0 4 0	Suryyakánta Dvidevi, Akandabaria.	An account of Ruru and Pramadvará as given in the Mahábharata.	8714
„ 21st	64	12mo rl	New...	1,000	ditto ...	0 8 0	Kánáilál Dhar, Calcutta.	The nature of *baul* songs has often been explained.	8715
„ 13th	16	16mo dy	New...	1,000	ditto ..	0 2 0	Jnanendra Mohan Set.	A Book of Fate ..	8716
Feb., 25th	88	8vo rl ...	1st ..	500	ditto ...	1 0 0	Rájkrishna Ráya.	.....	8717
Mar., 5th	80	8vo rl ...	1st ...	500	ditto ..	1 0 0	ditto ...	.. ..	8718
„ 18th	186	8vo ...	36th...	8,000	ditto ...	0 10 0	Nrisinha Chandra Mukharji, Calcutta.	.. ..	8719
April, 5th	222	12mo ...	28th...	6,000	ditto ..	0 8 0	Ram Sundar Basak, Dacca.	.....	8720
May, 14th	56	12mo ...	1st ...	2,000	ditto ...	0 4 0	.....	A letter writer ..	8721
„ 30th	116	12mo ...	3rd ...	4,000	ditto ...	0 5 0	.....	Containing Arithmetic, Simple Mensuration, Subhankari Zemindari and Mahajani Accounts.	8722
Mar., 28th	231	12mo dy	2nd ...	2,000	ditto ...	0 10 0	Gangádás Sháhá, Ghat Bandar, Murshidabad.	Compiled for the Students of Lower Primary Schools.	8723
May, 13th	206	12mo dy	8th ..	6,000	ditto ...	0 6 0	Brajendra Kumár Guha, Dacca.	Containing also Simple Mensuration, Zemindari and Mahajani Accounts.	8724

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						BENGALI
	POETRY.					
8725	Durgábati. The Princess of Garra in Central India.	Bengali	Kali Kamal Datta.	Poetry ...	Printed and published at 2, Benetola Lane, Calcutta.	Printed and published by Natabar Chakrabarti.
8726	Bhárate Durgotsaba. The Durga Pujá in India.	ditto ...	Pratáp Chandra Sen.	ditto ...	Printed and published at Burdwan.	Printed and published by Pratáp Chandra Sen.
8727	Bagrir Krishna Ráya. The Image of Krishna at Bagri.	ditto ..	Ishán Chandra Sámanta.	ditto ...	Printed at 323, Chitpore Road, Calcutta, and published at Kánknan (Hooghly).	Printed by Tinkari Biswas, and published by the Author.
	and the history of the worship of Krishna Ráya. Rájyadhar Ráya of Krishnanagar in Bagri, in the district accordingly. This event took place some time before Chaitanya, as one of his followers, Abhirám					
8728	Pránochchhás. The Out-pourings of the Heart.	ditto ...	Jogendra Náth Banerji.	ditto ...	Printed and published at 54-2-1, Grey Street, Calcutta.	Printed by Girish Chandra Ghosh, and published by Nanigopál Mukharji.
8729	Sandhyá Málatí. The Evening Flower.	ditto ...	Shibakishor Chakrabarti.	ditto ...	Printed and published at the Dacca Oriental Press.	Printed by Ram Chandra Banik, and published by the Author.
	at evening, and at night, with humorous sketches of men and things. The other describes the condition of a					
8730	Hridaya Kusum The Flower of the Heart.	ditto ...	Kálidás Banerji	ditto ...	Printed and published at 92, Bow Bazar Street, Calcutta.	Printed and published by Kishori Mohan Sen.
8731	Bidagdha Hridaya. The Scorched Heart.	ditto ...	Debendra Náth Ráya Chaudhuri.	ditto ...	Printed and published at 249, Bow Bazar Street, Calcutta.	Printed and published by I. C. Bose & Co.
8732	Pralap. Ravings ...	ditto ...	Sharat Shashi Guptá.	ditto ..	Printed and published at the Bagura Raya Press.	Printed by Bifod Bihari Banerji, and published by Ramesh Chandra Mazumdar.
8733	Bishádo Shánti. Peace in Misery.	ditto ...	Sáradá Kánta Ráya.	ditto ...	ditto ditto ...	ditto ditto ...
8734	Sádhuranjan Sanhitá. Adisur Ballál Upákhyán. A compilation for the entertainment of good men. The Story of Adisur and Ballál.	ditto ...	Madhusudan Mallik.	ditto ...	Printed at 374, Upper Chitpore Road, and published at Ghuntea Bazar, Hooghly.	Printed by Hara Chandra Das, and published by Madhusudan Mallik.
	because Ballabh Adhya, a Sonar Bania, refused to advance a crore of rupees to Ballal Sen, one of the Ballal Sen. It represents him as a monster in human shape quite unfit to govern a kingdom.					
8735	Hridaya Lahari. Waves in the Heart.	ditto ...	Prán Gopál Datta.	ditto ...	Printed at 333, Upper Chitpore Road, and published at 3-4, Simla Street, Calcutta.	Printed by Binod Bihari Sil, and published by Shyámá Charan Das.
	Bidhabá. The Widow...	ditto ...	.....	ditto ...	Printed at 3, Beadon Square, and published at 35, Nimu Gosain's Lane, Calcutta.	Printed by Biharilál Das and published by Haridás Bhattácháryya.
8736	Sádher Biye. A long-wished-for marriage.	ditto ...	.....	ditto ...	Printed and published at 3, Beadon Square, Calcutta.	Printed and published by Biharilál Dás.
8737	Sachitra Sambhog Tattwa. An illustrated treatise on enjoyments.	ditto ..	.....	ditto ...	ditto ditto ...	Printed by Biharilál Dás, and published by Upendra Nath Mukharji.
	The following works are designed for educational purposes.					
8738	Mitra Páth. Mitra's Reader.	ditto ...	Ananda Chandra Mitra.	ditto ...	Printed at 221, Cornwallis Street, and published at Islampore, Dacca.	Printed by Abhaya Charan Gupta, and published by Matilál Chakrabarti.
8739	Padyasamgraha. A Poetical Reader.	ditto ..	Edited by Kedár Nath Bhattácháryya.	ditto ...	Printed at 8, Srináth Babu's Lane, and published at Malipara.	Printed by Sarat Chandra Chatterji, and published by the Editor.

Quarter ending 30th June 1889—continued.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 9th	24	16mo double Fcap.	1st ...	500	Printed	0 2 0	Kálikamal Datta, Chittagong.	A poem in praise of the valour of Durgábatí who defended her *raj*, for a time, against the Generals of Akbar, but who fell, at last, fighting for her freedom.	8725
1888.									
Octo., 5th	22	8vo dy	1st ...	500	ditto ...	0 4 0	Pratáp Chandra Sen, Gangatikri, Burdwan.	An address to the Indo-Aryans and a prayer to Durgá.	8726
1889.									
April, 9th	12	12mo dy	1st ...	1,000	ditto ...	0 1 0	Ishán Chandra Sámanta, Káuknan.	Krishna Raya of Bagri Perganá is a well-known image of Krishna. The present work gives the antiquity of the place	8727
of Midnapore, was asked by Krishna in a dream to consecrate one of his images made at Cuttack, and he did so Goswámí, is said to have tested the divine powers of the image.									
Mar., 25th	92	8vo rl	1st ...	1,000	ditto ...	0 8 0	Surendra Nath Banerji, 54-2-1, Grey Street, Calcutta.	A collection of short poetical pieces on a variety of subjects. In one piece addressed to Pandit I. C. Bidyáságar, the	8728
writer laments the lot of Hindu girl-widows and ridicules those who compel them to lead a life of perpetual widowhood									
May, 10th	78	8vo ...	1st ...	1,000	ditto ...	1 0 0	.....	Two poems. One contains descriptions of Hindu society at morning, at noon,	8729
separated lover during each month of the year.									
April, 22nd	126	12mo dy	1st ...	500	ditto ...	0 12 0	Kalidás Banerji, Krishnagore.	Original pieces on a variety of subjects. Some of these pieces are adaptations of well-known English and Bengali poems.	8730
Mar., 12th	58	8vo dy	1st ..	250	ditto ...	.....	Debendra Kumár Ráya Chaudhuri, Báripore.	Written on the death of a dear child.	8731
May, 4th	46	.....	1st ...	500	ditto ...	Nil	.....	Lamentations of a bereaved mother at the loss of two of her sons within a short time of each other.	8732
June, 4th	19	12mo ...	1st ...	500	ditto ...	Nil	.....	Written to console a bereaved mother.	8733
„ 3rd	56	12mo dy	1st ...	1,000	ditto ...	0 4 0	.....	The Sonar Banias of Bengal consider themselves to be the representatives of the old Vaishya caste, but their position in the caste system in Bengal is very low, and they say that	8734
Sen Rájás of Bengal, that Rájá degraded the whole caste to a very low status. The present work is a lampoon on									
April, 27th	29	12mo dy	New	1,000	ditto ...	0 2 0	Shyámá Charan Das.	Original pieces on a variety of subjects.	8735
May, 5th	9	12mo dy	1st ...	1,000	ditto ...	0 2 0	Haridas Bhattácháryya, Calcutta.	The picture of a Hindu lady nursing her husband during his last illness.	
„ 4th	9	12mo dy	New	1,000	ditto ...	0 2 0	Biharilál Dás, Calcutta.	Describes how enlightened and educated daughters-in-law from towns bring about misery and ruin to the family into which they are married.	8736
April, 23rd	37	16mo dy	do.	1,000	ditto ...	0 4 0	Upendranath Mukharji, Calcutta.	Treats of love, and gives extracts from old authors.	8737
May, 5th	47	12mo ..	5th ...	1,000	ditto ...	0 5 0	Ishwar Chandra Chatterji, 49, Banstala Street, Calcutta.	A school-book	8738
April, 22nd	86	12mo dy	1st ...	1,000	ditto ...	0 8 0	Kedárnath Bhattácháryya.	Pieces selected from various standard authors.	8739

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						BENGALI
	POETRY—*continued.*					
8740	Kabitá Páth. A Poetical Reader. Part I.	Bengali	Mahendra Náth Chakrabarti.	Poetry ...	Printed at 153, Cornwallis Street, and published at Rajpore, 24-Pergunnahs.	Printed by Gopál Chándra Chakrabarti, and published by the Author.
8741	Pushpamálá. Garland of Flowers.	ditto ...	Shib Náth Shástri.	ditto ...	Printed and published at 13, Cornwallis Street, Calcutta.	Printed and published by Kártik Chandra Datta.
8742	Padyasár. The substance of Poetry.	ditto ...	Ananda Chandra Mitra.	ditto ..	ditto ditto ...	ditto ditto ...
8743	Padyasár Tritya Bhág Athabá Kábyasára. Substance of Poetry. Part III, or substance of Belles Letters.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8744	Chárn Niti. Entertaining Morals. Part I.	ditto ...	Hárán Chandra Chakrabarti.	ditto ...	Printed at 3, Beadon Square, and published at Jalpiguri.	Printed by Biharilál Das, and published by the Author.
8745	Nitihár. Necklace of Morals.	ditto ...	Kailás Chandra Banerji.	ditto ...	Printed and published at Barisal.	Printed and published by Hara Kumár Kar.
8746	Padya Parichaya. Introduction to Poetry.	ditto ...	Srináth Charan Máshanta.	ditto ...	Printed and published at Ghantal.	Printed and published by Fakir Náráyan Sarkár.
8747	Kabitábali. A Collection of Poetical Pieces. Part I.	ditto ...	Harish Chandra Mitra.	ditto ...	Printed and published at the Dacca Syamantaka Press.	Printed by Gopinath Basak, and published by Kunjabihari Banik.
8748	Mitrapáth. Mitra's Reader.	ditto ...	Ananda Chandra Mitra.	ditto ...	ditto ditto ...	Printed by Gopinath Basak, and published by Matilál Chakrabarti.
8749	Jibanmaya Kábya. A Living Poem.	ditto ...	Madan Mohan Mitra.	ditto ...	Printed and published at the Dacca Raghunath Press.	Printed by Nandakisor Basak, and published by Baikuntha Pandit, Ripon Library, Dacca.
8750	Komal Kabitá. Tender Poetry.	ditto ..	Káliprasanna Ghosh.	ditto ...	Printed and published at the Dacca Girish Press.	Printed by Kalimuddin, and published by Harakumár Basu.
8751	Ditto ditto ...	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
8752	Ditto ditto ...	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ..
8753	Kabitá Chandriká. The Moonshine of Poetry.	ditto ...	Chandra Kánta Bidyáratna.	ditto ...	ditto ditto ...	Printed by Kalimuddin, and published by Gopi Mohan Datta.
8754	Padya Manjarí. Blossoms of Poetry. Part I.	ditto ...	Prasanna Chandra Bidyáratna.	ditto ...	Printed and published at the Raghunath Press, Dacca.	Printed and published by Nandakisor Basak.
8755	Ditto ditto ...	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8756	Shaishabajnána Chandriká. The Moonlight of Juvenile Knowledge.	ditto ...	Ráshbihári Mukharji.	ditto ...	Printed and published at the Adarsha Press, Dacca.	Printed and published by Lachhman Basak.
8757	Sadbhábe Shataka. A Century of good Sentiments.	ditto ...	Krishna Chandra Mazumdar.	ditto ...	ditto ditto ...	Printed by Lachhman Basak, and published by Nandakumár Guha.
8758	Chháira Shikshá Kabitábali. A Collection of Poems on the Education of Students. Part I.	ditto ...	Govinda Chandra Ráya.	ditto ...	ditto ditto ...	Printed by Lachhman Basak and published by Baradá Sunker Dás.
8759	Kusum Manjari. The Flower in Blossoms.	ditto ...	Annadá Charan Gupta.	ditto ...	ditto ditto ...	Printed and published by Lachhman Basak.
8760	Padya Niti. Morals in Verse.	ditto ...	Sánukul Chandra Chatterji.	ditto ...	Printed at 2, Nawabdi Ostagar's Lane, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Pitámbar Banerji, and published by the Sanskrit Press Depository.
8761	Padyapáth. Poetical Reader. Part I.	ditto ...	Jadúgopal Chatterji.	ditto ...	Printed at 44, Amherst Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Biharilál Banerji, and published by the Sanskrit Press Depository.
8762	Ditto ditto. Part II	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto ditto ...
8763	Ditto ditto. Part III	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto ditto ...
8764	Sarala Kabitábali. A Collection of Easy Poetical Pieces. Part I.	ditto ...	Jádab Chandra Goswámi.	ditto ...	Printed at 44, Amherst Street, and published at Pubna.	Printed by Biharilál Banerji, and published by D. D. Sur.
8765	Kabitá Kusumánjali. A Palmful of Flower of Poetry. Part II.	ditto ...	Krishna Kishor Banerji.	ditto ...	Printed at 44, Amherst Street, and published at Culna.	Printed by Biharilál Banerji, and published by Hari Charan Banerji.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
May, 31st	46	12mo dy	1st ...	1,000	Printed	0 2 0	Mahendra Náth Chakrabarti, Rajpore, 24-Pergunnahs.	.....	8740
Apr., 7th	128	12mo rl	5th ...	1,000	ditto ..	0 10 0	Shib Náth Shástri.	A well-known school-book ..	8741
„ 13th	60	12mo dy	5th ...	1,000	ditto ...	0 3 0	Ananda Chandra Mitra.	ditto ...	8742
„ 8th	150	12mo dy	2nd ...	1,000	ditto ...	0 8 0	ditto ...	ditto ...	8743
„ 18th	29	12mo dy	1st ...	1,000	ditto ...	0 2 0	Hárán Chandra Chakrabarti, Jalpiguri.	Entertaining lessons for the use of boys.	8744
May, 25th	58	9×5	1st ...	500	ditto ..	0 4 0	.....	Written with a view of teaching morals to school-boys.	8745
„ 2nd	34	12mo ...	4th ...	1,000	ditto ..	0 2 0	Srinath Charan Mashanta, Basudebpore, Midnapore.	.....	8746
„ 5th	25	12mo ...	5th ...	6,000	ditto ...	0 2 0	.....	.....	8747
May, 16th	47	12mo ...	6th ...	1,000	ditto ..	0 5 0	.....	.....	8748
„ 6th	140	12mo ...	2nd ...	2,500	ditto ...	0 8 0	.....	.....	8749
Mar., 25th	96	12mo ..	2nd ...	2,000	ditto ...	0 2 6	Kaliprasanna Ghosh, Dacca.	.....	8750
Apr., 5th	36	12mo ...	3rd ...	2,000	ditto ...	0 2 6	ditto ...	.....	8751
May, 14th	36	12mo ...	4th ...	2,000	ditto ..	0 2 6	ditto ...	.....	8752
Apr, 18th	56	12mo ...	6th ...	1,000	ditto ...	0 4 0	.....	.....	8753
„ 9th	12	12mo ...	32nd...	3,000	ditto ...	0 1 0	.....	.....	8754
May, 10th	12	12mo ...	33rd...	3,000	ditto ...	0 1 0	.....	.....	8755
Apr., 6th	48	12mo ...	3rd ...	1,000	ditto ...	0 4 0	.....	.....	8756
May, 2nd	148	12mo ...	14th...	2,000	ditto ...	0 12 0	.....	A well-known school-book. Many of the pieces have been translated from the Persian.	8757
„ 7th	42	12mo ...	3rd ...	1,000	ditto ...	0 3 0	.....	.....	8758
„ 10th	27	12mo ...	2nd ...	1,000	ditto ..	0 2 0	.....	.....	8759
Apr., 5th	44	12mo ...	2nd ...	3,000	ditto ...	0 2 0	Sánnkul Chandra Chatterji, Cornwallis Street, Calcutta.	.....	8760
Mar., 27th	44	12mo ...	46th...	10,000	ditto ..	0 2 0	Jadugopál Chatterji, 44, Amherst Street, Calcutta.	A well-known school book ...	8761
Apr, 3rd	72	12mo ...	32nd..	8,000	ditto ...	0 4 0	ditto ...	ditto ditto ...	8762
„ 15th	95	12mo ...	31st ...	5,000	ditto ...	0 8 0	ditto ...	ditto ditto ...	8763
„ 12th	68	12mo ...	2nd ...	4,000	ditto ...	0 4 0	Jádab Chandra Goswámi, Pubna.	ditto ditto ...	8764
„ 18th	86	12mo ...	12th...	1,000	ditto ..	0 6 0	Hari Charan Banerji, Culna.	ditto ditto ...	8765

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						BENGALI
	POETRY—*concluded.*					
8766	Kábya Kusum. Flower of Poetry.	Bengali	Akshaya Kumára Bidyábinod.	Poetry ...	Printed at 23, Jugal Kishor Das' Lane, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by U. C. Pál, and published by the Sanskrit Press Depository.
8767	Nitishikshá. Moral Instruction. Part I.	ditto ...	Ishán Chandra Raya Chaudhuri.	ditto ...	Printed and published at 46, Panchanantalá Lane, Calcutta.	Printed and published by Sányál and Co.
8768	Padyalatiká. The Creeper of Poetry. Part 1.	ditto ...	Shambhunáth Datta.	ditto ...	Printed and published at the Mymensing Charu Press.	Printed and published by Umákánta Rakshit.
8769	Padyaprabesh. An Introduction to Poetry.	ditto ...	Jadunáth Pál...	ditto ...	Printed and published at the Dinagepore Sen Press.	Printed and published by Bankim Bihari Banerji.
8770	Saral Kabitá Mayi. Full of Easy Verses.	ditto ...	Harakishor Das	ditto ...	Printed at 5, Nilmádhab Sen's Lane, and published at Goalpara.	Printed by A. G. Sen and Co., and published by Hari Charan Das.
8771	Priyapátha. Beloved Lessons.	ditto ...	Rámchandra Chakrabarti.	ditto ...	Printed at 23-1, Beebu Chatterji's Street, and published at the Dacca Students' Library.	Printed by Jadunáth Sil, and published by the Dacca Students' Library.
8772	Ditto ditto ...	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
	RELIGION.					
8773	Mahabharata. Vol. 5. No. 39. (T.)	ditto ...	Translated by Rámsebak Bidyáratna.	Religion, H.	Printed and published at 92, Bowbazar Street, Calcutta.	Printed by Kisori Mohan Sen, and published by Aghornáth Barat.
8774	Ditto ditto. Vol. 5. No. 40. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8775	Ditto ditto. Vol. 5. No. 41. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	Printed and published by Aghornáth Barat.
8776	Ditto ditto. Vol. 5. No. 42. (T.)	ditto ...	ditto ..	ditto ..	ditto ditto ...	Printed by Kisori Mohan Gupta, and published by Aghornáth Barat.
8777	Ditto ditto. Vol. 5. No. 43. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8778	Ditto ditto. Vol. 5. No. 44. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8779	Ditto ditto. Vol. 3. (T.)	ditto ...	.....	ditto ..	Printed and published at 34-1, Colootola Street, Calcutta.	Printed and published by Biharilál Dás.
8780	Ramayan. Sapta Kánda. The Ramayana. Complete in seven books. (R.)	ditto ...	Krittibás ...	ditto ...	Printed at 323, Chitpore Road, and published at 40, Garanhata Street, Calcutta.	Printed by Tinkari Biswas, and published by Panchánan Ghosh.
8781	Prabháskhanda. The Story of Prabhása.	ditto ...	Mahesh Chandra De.	ditto ...	ditto ditto ..	ditto ditto ...
8782	Brihat Lakshmi Charitra. A large work on the Goddess of Wealth.	ditto ...	Baikuntha Nath Maji.	ditto ...	Printed and published at 117, Chitpore Road, Calcutta.	Printed and published by Trailokyanath Datta.
8783	Mahabharata. Swapnaparba. The Mahabharata. The Book of Dreams. (R.)	ditto ...	Kásirám Das...	ditto ...	ditto ditto ...	ditto ditto ...
8784	Dúti Sambád. A Conversation of the Female Messenger.	ditto ...	.....	ditto ...	ditto ditto ..	ditto ditto ...
8785	Bhaktitattwasár. The substance of the Nature of Bhakti.	ditto ...	.....	ditto ..	ditto ditto ..	ditto ditto ...

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 15th	45	12mo dy	1st ...	500	Printed	1 0 0	Akshaya Kumár Kábyabinod, 148, Baranasi Ghosh's Street, Calcutta.	In the preface the writer finds fault with the language, manner and matter of the most popular school-books in Bengali, with the Inspectors of Schools for allowing these books to be still used, and with the Central Text-book Committee, the members of which, he says, are masses of matter with a small quantity of life infused into them. There are pieces in prose also. The writer gives copious notes at the foot of each page in which he speaks very hard of modern Sanskrit scholarship.	8766
May, 4th	32	12mo dy	8th ...	3,000	ditto ...	0 2 0	Ishán Chandra Raya Chaudhuri, Mymensing.	.....	8767
April, 22nd	30	12mo dy	1st ...	2,000	ditto ...	0 2 0	Shambhunath Datta, Bakari, Mymensing.	Short poetical pieces suited to juvenile capacity.	8768
May, 19th	11	8vo dy...	1st ...	1,000	ditto ...	0 1 0	Jadu Nath Pál ..	Designed for educational purposes.	8769
April, 20th	24	12mo ...	1st ...	1,000	ditto ...	0 2 0	Hara Kishor Das, Goalpara.	ditto ditto ...	8770
Mar., 30th	68	12mo dy	7th ..	5,000	ditto ..	0 5 0	Ram Chandra Chakrabarti, Dacca.	ditto ditto ...	8771
May, 20th	72	12mo dy	8th ...	3,000	ditto ...	0 5 0	ditto ...	ditto ditto ...	8772
April, 22nd	48	8vo ...	1st ...	2,000	ditto ...	0 8 0	Aghornáth Barat 92, Bowbazar Street, Calcutta.	Goes on with the *Udjoga Parba*.	8773
„ 22nd	48	8vo ...	1st ...	2,000	ditto ...	0 8 0	ditto ...	ditto ditto ..	8774
„ 25th	48	8vo ...	1st ...	2,000	ditto ...	0 8 0	ditto ...	ditto ditto ...	8775
„ 25th	48	8vo ...	1st ..	2,000	ditto ...	0 8 0	ditto ...	ditto ditto ...	8776
„ 25th	48	8vo ...	1st ...	2,000	ditto ..	0 8 0	ditto ...	ditto ditto ...	8777
May, 5th	48	8vo ...	1st ..	2,000	ditto ..	0 8 0	ditto ...	ditto ditto ..	8778
„ 15th	650	8vo sprl.	1st ..	50,000	ditto ..	4 0 0	ditto ...	The *Udjoga*, *Drona* and *Bhishma parba* completed	8779
„ 15th	616	8vo rl .	3rd ..	1,000	ditto ...	1 4 0	.....	.....	8780
Mar., 10th	304	12mo dy	2nd ..	1,000	ditto ..	1 14 0	Panchánan Ghosh.	.....	8781
April, 18th	58	8vo rl ...	10th...	3,000	ditto ...	0 4 0	Trailokyanath Datta.	The spread of the worship of the goddess of wealth, a description of the houses where the goddess dwells, and of those which she shuns, her quarrels with her co-wife the goddess of learning, &c.	8782
„ 22nd	30	12mo rl	Revised.	3,000	ditto ...	0 2 6	.....	An apocryphal chapter of the Mahábhárata, said to be a secret chapter of the work, and translated into Bengali by Káshirám Das. The author mentions a Bengali translation of the Bhágabat by Jagannath Dás which is not known to the public.	8783
„ 27th	48	12mo rl	do.	3,000	ditto ...	0 3 0	.....	Brindá goes to Mathura as the messenger of Rádhá and other milkmaids of Brindaban to bring back Krishna to them. He does not come, and the milkmaids are greatly chagrined at the change in his attitude towards them.	8784
„ 25th	60	12mo rl	do.	3,000	ditto ...	0 3 0	.....	Short poetical pieces in the Vaishnaba interest. Often noticed.	8785

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						BENGALI
	RELIGION—*continued.*					
8786	Muktálatábali. A Collection of Pearl Creepers.	Bengali	Durgáprasád Sharmá.	Religion H.	Printed and published at 117, Chitpore Road, Calcutta.	Printed and published by Trailokyanath Datta.
8787	Prabhás Khanda. The Story of Prabhás.	ditto ...	Ishwar Chandra Sarkár.	ditto ...	Printed at 54, Balarám De's Street, and published at 98-3, Chitpore Road, Calcutta.	Printed by Rákhál Chandra Das, and published by Ram Kánái Das.
8788	Brahma Baibartta Purána. A Purán describing the creation of the world from the evolution from Brahma. (T.)	ditto ...	Purán Chandra Das.	ditto ...	ditto ditto ...	ditto ditto ...
8789	Bhaktitáttwasar. The Substance of the Nature of Bhakti.	ditto ...	.....	ditto ...	ditto ditto ...	ditto ditto ...
8790	Brihat Padma Purána A large Recension of the Padma Purána.	ditto ...	Mahes Chandra Das De.	ditto ...	ditto ditto ...	ditto ditto ...
8791	Shástrártha Samkalan. A collection of the precepts of the Hindu Scripture. Part I. (T).	ditto ...	G. C. Bhattácháryya.	ditto ...	Printed at the New Prákrita Press, Chitpore, and published at Jamtárá.	Printed by Rakhal Chandra Das, and published by Nirad Bihari Goswámi
8792	Ditto ditto. Parts II and III (together). (T).	ditto ..	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8793	Ditto ditto. Part IV. (T).	ditto ..	K. P. Bidyáratna and others.	ditto ...	ditto ditto ...	ditto ditto ...
8794	Ditto ditto. Part V. (T).	ditto ..	M. C. De and others.	ditto ...	ditto ditto ...	ditto ditto ...
8795	Ditto ditto. Part VI. (T).	ditto ...	W. N. Mitra and others.	ditto ...	ditto ditto ...	ditto ditto ...
8796	Ditto ditto. Part VII. (T).	ditto ...	P. C. Das and others.	ditto ...	ditto ditto ...	ditto ditto ...
8797	Haribansha. The Descendants of Hari. Parts I and II (together). (T).	ditto ...	B. M. Sarma ...	ditto ..	ditto ditto ...	ditto ditto ..
8798	Ditto ditto. Parts III and IV (together). (T).	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8799	Ditto ditto. Parts V and VI (together). (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8800	Ditto ditto. Parts VII and VIII (together). (T)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8801	Ditto ditto. Parts IX and X (together). (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	dittto ditto ...
8802	Ditto ditto. Parts XI and XII (together). (T.)	ditto ...	ditto ...	ditto ...	Printed at Ultadinghi, and published at Jámtára.	Printed by Banamáli Das, and published by Nirad Bihari Goswámi.
8803	Bhaktiratnákar. The Ocean of Devotion. Part VIII. (R.)	ditto ...	Narahari Chakrabarti.	ditto ...	Printed and published at Berhampore.	Printed and published by Rám Náráyan Bidyáratna.
8804	Ditto ditto. Part IX. (R.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8805	Ditto ditto. Part X. (R.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...

Quarter ending 30th June 1889—continued.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 24th	110	12mo rl	3rd ...	3,000	Printed	0 4 0	.....	Noticed	8786
May, 2nd	372	12mo rl	4th ...	1,000	ditto ...	1 0 0	Ram Kánái Das.	This is a very different work from the work of the same name noticed above. It treats of the career of Krishna at Brindaban, and Yasodá sees in a dream the advent of Chaitanya on earth.	8787
„ 8th	692	8vo rl ...	3rd ...	1,000	ditto ...	4 0 0	ditto ...	Metrical translation of a well-known Purána.	8788
„ 3rd	60	12mo ...	Revised.	1,000	ditto ..	0 3 0	.....	.....	8789
„ 5th	152	8vo rl ...	4th ...	1,000	ditto ..	0 14 0	Ram Kánái Dás, Calcutta.	The work has been named Padmapurán, because the interlocutors are Nárada and Padmalochana, the Prince of Kushadwip, one of the seven islands which constitute the earth.	8790
April, 8th	660	8vo rl ...	1st ..	300	ditto ...	6 10 0	Nirada Bihari Goswámi, Jámtara.	This part contains a prose translation of the Joga Váshishtha.	8791
„ 15th	1,322	8vo rl ...	1st ...	300	ditto ...	13 4 0	ditto ..	Joga Váshishtha ends and Haribansha begins.	8792
„ 29th	391	8vo rl ...	1st ...	300	ditto ..	3 7 0	ditto ...	A metrical translation of the Jaimini Bhárat.	8793
„ 29th	152	8vo rl ...	1st ...	300	ditto ...	1 14 0	ditto ...	Contains Padmapurán, which is in every way identical with a work of the same name noticed above.	8794
May, 15th	1105	8vo rl ...	1st ...	300	ditto ...	9 8 0	ditto ...	A metrical translation of the whole of the Srímad Bhágabata.	8795
„ 20th	248	8vo rl ...	2nd ...	300	ditto ...	2 8 0	ditto ...	A metrical translation of the Kálikápurán.	8796
April, 23rd	76	4to ...	2nd ...	500	ditto ...	3 0 0	ditto ...	A prose translation of the Haribansha.	8797
„ 23rd	80	4to ...	2nd ...	500	ditto ...	3 0 0	ditto ...	ditto ditto ...	8798
„ 23rd	80	4to ...	2nd ...	500	ditto ...	3 0 0	ditto ...	ditto ditto ...	8799
„ 23rd	80	4to ...	2nd ...	500	ditto ...	3 0 0	ditto ...	ditto ditto ...	8800
„ 23rd	72	4to ..	2nd ...	500	ditto ...	3 0 0	ditto ...	ditto ditto ...	8801
„ 24th	126	4to ...	2nd ...	500	ditto ...	3 0 0	ditto ...	ditto ditto ...	8802
Mar., 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 8 0	... ..	Contains a glowing description of some of the early congregations of the Vaishnaba monks shortly after the disappearance of Chaitanya. The occasions for these congregations were the obsequies of Gadádhar Pandit at Cutwa, and the anniversary of the death of Narahari at Srikhand. They were both great favourites with Chaitanya.	8803
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 8 0	.....	Describes an assemblage of the monks in which the spirit of Chaitanya manifested itself, as well as the consecration of the temple at Khardaha by the wife of Nityánanda, who was second only to Chaitanya in the matter of preaching the new religion.	8804
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 8 0	.....	Srinibás, Narottam, and Shyámánanda, three great luminaries of the Vaishnava Church, in the generation which succeeded Chaitanya take a tour round Navadwipa with a view to see the places consecrated by the presence of Chaitanya.	8805

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	RELIGION—*continued.*					BENGALI
8806	Bhakti Ratnákar. The Ocean of Devotion Part XI. (R)	Bengali	Narahari Chakrabárti.	Religion, H.	Printed and published at Berhampore.	Printed and published by Rám Náráyan Bidyáratna.
8807	Ditto ditto. Part XII. (R.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8808	Ditto ditto. Part XIII. (R.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8809	Ditto ditto. Part XIV. (R.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8810	Chaitanya Charitámrita The Nectar of Chaitanya's works. Part IX. (R.)	ditto ...	Kirshna Das Kabiráj.	ditto ...	ditto ditto ..	ditto ditto ....
8811	Ditto ditto. Part X. (R.)	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
8812	Ditto ditto. Part XI. (R.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8813	Ditto ditto. Part XII. (R.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8814	Sukhámrita Grantha. A Book of the Nectar of Happiness.	ditto ...	Aditya Charan Dás.	ditto ...	Printed and published at 78, College Street, Calcutta.	Printed and published by Dwijendra Nath Pande.
8815	Sártattwa The Substance of Substances.	ditto ...	.....	ditto ...	Printed and published at 3, Beadon Square, Calcutta.	Printed by Biharilál Das, and published by Upendranath Mukharji.
8816	Haridáser Dharma Kathá. A Religious discourse by Haridas.	ditto ...	.....	ditto B. ...	Printed and published at 24, Beadon Street, Calcutta.	Printed and published by Manimohan Rakshit.
8817	Param Kalyán Gitá. The Most Auspicious Work in Verse. (T.)	ditto ...	Shibanáráyana Swámi.	ditto ...	Printed and published at 55, Chitpore Road, Calcutta.	Printed by Kalidás Chakrabarti, and published by Mohini Mohan Chatterji.
8818	Manohar Sáyi Brahma Sangita. Brahmo Songs in the tune made popular by Manohar Sháha.	ditto ...	Kisorilál Ráya	ditto ...	Printed and published at the Bogra Raya Press.	Printed by Binod Bihari Banerji, and published by the Author.
8819	Satya Náráyan. A Poem in Honour of Satya Náráyan.	ditto ...	Rádhánáth Mitra.	ditto H. ...	Printed at 147, Chitpore Road, and published at 9—1, Becharám Chatterji's Lane, Calcutta.	Printed by Umesh Chandra Pal, and published by Sáradá Prasád Mukharji.
8820	Sri Srijuter Pada. The Songs by the Holy Lord.	ditto ...	.....	ditto ...	Printed at 2, Nawabdi Ostagar's Lane, and published at 6, Madan Mitra's Lane, Calcutta.	Printed by Pitambar Banerji, and published by Bhuban Mohan Ganguli.
8821	Dharmopahára. A Religious Offering.	ditto ...	Gobindachandra Mukharji.	ditto ..	Printed at 132, Maniktala Street, and published at Sthal Basantapore. Pubna.	Printed by Harihar Nandi, and published by Devendra Nath Pákrási.
8822	Bálir Pinda O Shiba Ramer Juddha. The Funeral Cake of Sand and the war between Shiva and Rám.	ditto ...	Lakshman Chandra Sharmanee.	ditto ...	Printed at 1, Garanhata Street, and published at 19, Brindaban Basak's Lane, Calcutta.	Printed by Gobinda Chandra Datta, and published by Hridayalál Sil.
8823	Tantrasára. The Substance of the Tantras.	ditto ...	.. ...	ditto ...	Printed and published at 100, Bowbazar Street, Calcutta.	Printed and published by B. C. Sarkár.
8824	Upadesha Kusum. The Flower of Counsels.	ditto ...	Girish Chandra Das.	ditto ...	Printed and published at the Adarsha Press, Dacca.	Printed by Lachhman Basak, and published by Girish Chandra Das.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
Mar., 22nd	80	8vo ...	1st ...	1,000	Printed	0 8 0	.....	The same subject continued ...	8806
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 8 0	.....	ditto ditto ...	8807
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 8 0	.....	The marriages of Srinibásh and Birabhadra the son of Nityánanda.	8808
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 4 0	.....	The festivities at Borakuli and the missionary work of Shyámánanda in Orissa.	8809
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 12 0	.....	With a running paraphrase in prose and with notes by Jagan Mohan Dás.	8810
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 12 0	.....	ditto ditto ...	8811
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 12 0	.....	ditto ditto ...	8812
„ 22nd	80	8vo ...	1st ...	1,000	ditto ...	0 12 0	.....	ditto ditto ...	8813
„ 20th	45	16mo dy	1st ...	250	ditto ...	0 2 0	Aditya Charan Dás, Sealdah.	A conversation on spiritual subjects between a worldly man and a mendicant. Devotion to God relieves man of all physical and mental pain, and brings him to perpetual happiness.	8814
April, 19th	12	12mo dy	1st ...	1,000	ditto ...	0 4 0	Upendra Nath Mukharji, Calcutta.	Written in the interest of Hindu orthodoxy, with the object of undervaluing Brahmoism, especially in its *Nababidhán* form.	8815
„ 27th	46	16mo dy	1st ...	1,000	ditto ...	0 2 0	.....	Written in the opposite interest. The writer makes a successful attempt to induce a Hindu gentleman to accept Brahmoism by pointing out the evils of idolatry of the caste system and so forth.	8816
May, 19th	314	8vo rl ...	1st ...	1,000	ditto ...	1 0 0	Shibnáráyana Swámi, Kalighát.	Translated from the Hindi. It is a defence of Hinduism in its higher and spiritual aspect, with suggestions for the reformation of certain social customs. Fire, sun, and the stars seem to be the principal objects of worship.	8817
June, 4th	32	12mo ...	1st ...	500	ditto ...	0 4 0	.....	The title explains the object of the work.	8818
Mar., 10th	23	12mo dy	2nd ...	1,200	ditto ...	0 2 0	Surya Kumár Mukharji, 21 Sankar Haldar's Lane, Calcutta.	ditto ditto ...	8819
April, 6th	64	8vo ...	1st ...	1,000	ditto ...	0 8 0	Bhuban Mohan Ganguli, 6, Madan Mitra's Lane, Calcutta.	Songs of the "Kartábhajá" sect of Vaishnabas published with the permission of the late Ishwar Chandra Pál, of Ghoshpara, the headman of the sect.	8820
Mar., 28th	26	12mo dy	1st ...	500	ditto ...	0 1 0	Devendranáth Pákrási, Sthal Basantapore, Pubna.	The writer thinks that Western education is undermining the foundations of Hindu religion and Hindu orthodoxy, which Islam and Buddhism could not shake; but he thinks that the eyes of the Hindus have been opened, and that they are in a position to counteract these foreign influences by a study of the past history of their religion.	8821
May, 25th	23	12mo rl	5th ...	1,000	ditto ...	0 2 0	Hridayalal Sil, Calcutta.	Noticed	8822
April, 16th	80	12mo dy	1st ...	2,000	ditto ...	0 4 0	B. C. Sarkár, 16, Madan Datta's Lane, Calcutta.	The principles of *Tantric* cult explained in Bengali.	8823
„ 2nd	12	12mo ...	1st ...	1,000	ditto ...	0 1 0	.....	The sayings of Buddha, Kabir and other great reformers.	8824

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
	RELIGION—*continued.*					BENGALI
8825	Chakra Chintámani. The Jewel of thoughts composed of Discs.	Bengali	Durgácharan Tarkaratna.	Religion, H.	Printed and published at the Adarsha Press, Dacca.	Printed by Lachhman Basak, and published by Harimohan Banerji.
8826	Chaitanya Charitámrita Grantha. The Nectar of the Life of Chaitanya. (R.)	ditto ...	Krishnadás Kabiráj.	ditto ..	Printed at 1, Nimu Gosain's Lane, and published at 1, Garanhata Street, Calcutta.	Printed by Mákhanlál Ghosh, and published by Ganesh Chandra Ghosh.
8827	Adhyátma Rámáyana. The Spiritual Rámáyana, Nos. 13, 14 and 15 (together). (T.)	ditto ...	Baláichánd Goswámi.	ditto ..	Printed at 63-3, Mechua Bazar Road, and published at 74, Balaram De's Street, Calcutta.	Printed by Gopál Chandra Niyogi, and published by Dwárakanáth Chandra & Co.
8828	Brahman Ke? Who is a Brahman.	ditto ...	Hárádhan Mukharji.	Religion, C.	Printed and published at 22, Old Baitakkhana 2nd Lane, Calcutta.	Printed and published by Ramanáth Ghosh.
8829	Nitiratna. The Jewel of Good Advice.	ditto ...	Nabaraj Barua.	Religion, Buddha.	Printed and published at Chittagong.	Printed and published by Rám. Gobinda Chakrabarti.
8830	Jishu Nám Madhur Nám. The Sweet Name of Jesus.	ditto ...	G. H. Rouse ...	Religion, C.	Printed at the Baptist Mission Press, and published at 23, Chowringhee Road, Calcutta.	Printed by G. H. Rouse, and published by the C. T. and B. Society.
8831	Kichhutei Punya Nái. Merit in Nothing.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8832	Dhanákar. The Mine of Wealth.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8833	Pátaki Táran. The Saviour of Sinners.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8834	Tulsi. The Tulsi plant	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8835	Ishwar Amáder Pitá. God is our Father.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8836	Bidhabár Prati Ishwarer Dayá. God's Mercy to the Widow.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8837	Putra Shok. The Death of a Child.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8838	Aksmát Bajrágháta. The Sudden Lightning Stroke.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8839	Shibá Desher Rání. The Queen of Sheba.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8840	Luthia. Lydia, the Purple-Seller.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8841	Kshudhá o Pipásá. Hunger and Thirst.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8842	Swarga O Swarger Path. Heaven and the Way there.	ditto ...	ditto ..	ditto ..	ditto ditto ...	ditto ditto ...
8843	Agnibrishti. Fire Rained from Heaven.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	REMARKS.	Number.
BOOKS—continued.									
1889. June, 8th	Pages. 18	8vo ...	1st ...	150	Printed	Rs. A. P. 0 3 0	.....	The substance of Purnánanda's Sanskrit work on the subject of the six discs which connect, according to the Tantric theory, the system of veins in the human body. The nature of these discs and the system of *Nâdis* or veins have been explained in this work.	8825
April, 1st	354	8vo rl ...	Revised.	2,000	ditto ...	1 6 0	.....	Often noticed	8826
Mar., 6th	144	8vo dy...	1st ...	1,050	ditto ...	0 4 0	Dwárakánáth Chandra.	A new translation of the Adhyátma Ramayan spoken by Shiba to Durgá.	8827
April, 5th	12	12mo dy	1st ...	1,000	ditto ...	.....	A. C. Mukharji, Dihi Serampore Road, Calcutta.	The writer thinks that the Brahmans are the descendants of Israel. They invariably use the word *Shrila* before writing their names. But the word *Shrila* is the same as *I-shraela*. The word Brahmana is simply another form of Abraham, from whom the writer thinks both the Jews and the Brahmans are descended.	8828
Mar., 4th	12	6mo dy	1st ...	500	ditto ..	0 1 0	Nabaraj Barua, Uttara Bhunsi.	Certain sayings of the Dhammapada rendered into Bengali prose.	8829
April, 3rd	4	12mo dy	2nd ...	5,000	ditto ...	.....	C. T. and B. Society, 23, Chowringhee Road, Calcutta.	The meaning of the term Jesus Christ is one who is engaged in saving others. It is a sweet name. Jesus is conquering the whole world and spreading His religion at the expense of the false religions of the world.	8830
„ 3rd	8	12mo dy	3rd ...	5,000	ditto ...	.....	ditto ...	The only means for salvation is faith in Christ. Those who think that merit can save them are wrong.	8831
„ 3rd	4	12mo dy	2nd ...	5,000	ditto ...	.....	ditto ...	To those who put their faith in Christ, He is the highest wealth.	8832
„ 3rd	4	12mo dy	5th ...	5,000	ditto ...	.....	ditto ...	....	8833
„ 3rd	4	12mo dy	3rd ...	5,000	ditto ...	.....	ditto ...	The plant *tulsi* is a special favorite with Vishnu, and therefore it is an object of worship. The writer objects to the worship of trees. Put faith in Jesus, he says, and you will be saved.	8834
„ 3rd	4	12mo ...	4th ..	5,000	ditto ...	.....	ditto ...	.....	8835
„ 3rd	4	12mo dy	5th ...	5,000	ditto ...	.....	ditto ...	.....	8836
„ 3rd	4	12mo dy	4th ...	5,000	ditto ...	.....	ditto ...	.....	8837
„ 3rd	4	12mo dy	5th ...	5,000	ditto ...	.....	ditto ...	.....	8838
Mar., 5th	4	16mo dc	1st ...	10,000	ditto ...	.....	ditto ...	The Queen of Sheba came to Solomon to learn wisdom, both spiritual and material. She came with valuable presents. The Bengali ladies should go to a greater Being, the son of God, who scorns all presents. He is not distant: believe in Him and He is present before you.	8839
„ 5th	4	16mo dc	1st ...	10,000	ditto ...	.....	ditto ...	Bengali ladies should hear the Gospel with attention as did Lydia, the purple-seller, who, on hearing the good news, put faith in it, and was saved.	8840
May, 6th	4	16mo dc	1st ...	15,000	ditto ...	.....	ditto ...	The soul has its hunger and its thirst for peace and happiness, and that happiness can be obtained by putting faith in Christ.	8841
„ 6th	4	16mo dc	1st ...	15,000	ditto ...	.....	ditto ...	The Hindus, the Musalmans all long for heaven: but this heaven is a place of material enjoyment. That is not true heaven. It can be reached only by putting faith in Christ.	8842
„ 9th	4	...	1st ...	15,000	ditto ...	... ..	ditto ...	The story of the burning of Sodom and Gomorrha and the lessons to be derived from it.	8843

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						BENGALI
	RELIGION—*concluded.*					
8844	Belun O Belun Báj Sháheb. The Balloon and the Balloonist.	Bengali	G. H. Rouse ...	Religion C.	Printed at the Baptist Mission Press, and published at 23, Chowringhee Road, Calcutta.	Printed by G. H. Rouse, and published by the C. T. and B. Society.
8845	Kon Shástra Mánaniya? What Scriptures should be regarded?	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8846	Mathi Likhita Susamáchára The Gospel of St. Matthew. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	Printed by G. H. Rouse, and published by the Calcutta A. B. Society.
8847	Ki Janya O Kirupe Shástra Path Karite Haya. Why and how to read the Scriptures.	ditto ...	ditto ...	ditto ...	Printed and published at the Baptist Mission Press, Calcutta.	Printed by G. H. Rouse, and published by the Scripture Union.
8848	Káti Kijam. Catechism	ditto ...	Right Reverend F. Pozzi, Bishop of Kishnagore.	ditto	Printed and published at Jessore.	Printed by Kshetra Gopál Sinha, and published by the Author.
8849	Eslám Tattwa. The substance of Islam.	ditto ...	M. R. Ahmed and Shaikh A. Rahim.	Religion, M.	Printed at 63-3, Mechua Bazar Street, and published at 79, Old Baitakkhana Bazar Street, Calcutta.	Printed by Gopál Chandra Niyogi, and published by Shahaán Sháh and Co.
	SCIENCE (MATHEMATICAL). *The following works are designed for educational purposes.*					
8850	Kshetratattwa. Geometry. Book I.	ditto ...	Mohan Chandra Basák.	Science (Mathematical).	Printed and published at 8, Dixon's Lane, Calcutta.	Printed and published by B. L. Chakrabartti.
8851	Jyámitir Atirikta Samádhán. Solution of Geometrical Exercises.	ditto ...	Nibáran Chandra Ghosh.	ditto ...	Printed at 21, Sitáram Ghosh's Street, and published at 54, College Street, Calcutta.	Printed by Shashi Bhushan Datta, and published by the Som Prakásh Depository.
8852	Mánasik Gananá. Mental Arithmetic.	ditto ...	Dinanath Sen .	ditto ..	Printed at 23-1, Bechu Chatterji's Street, Calcutta, and published at Gendirea, Dacca.	Printed by Jadunath Sil, and published by Girish Chandra Sen.
8853	Chalitánka. The Current Arithmetic.	ditto ...	Madhusudan Bhattácháryya.	ditto ...	Printed at 8, Srináth Babu's Lane, Calcutta, and published at Raghunathganj.	Printed by Sarat Chandra Chatterji, and published by the Author.
8854	Shubhankari. Indigenous Bengali Arithmetic.	ditto ...	Nilmani Sil ...	ditto ...	Printed at 339, Upper Chitpur Road, Calcutta, and published at Panihati.	Printed by Káliprasanna Ráya, and published by Nilmani Sil.
8855	Shubhankari Dhárápat. Indigenous Arithmetical Tables.	ditto ...	ditto ...	ditto ...	Printed at 68, Nimu Gosain's Lane, and published at 108, Chitpur Road, Calcutta.	Printed by Káliprasanna Ráya, and published by Sarat Chandra Bhattácháryya.
8856	Dhárápat Shubhankari Samet. Arithmetical Tables with Shubhankari.	ditto ...	.....	ditto ...	Printed at 333, and published at 118, Upper Chitpur Road, Calcutta.	Printed by Binod Bihári Sil, and published by Baishnab Charan Basák.
8857	Nutan Dhárápat. New Arithmetical Tables.	ditto ...	Abalá Kánta Sen.	ditto ...	Printed and published at 66, Beadon Street, Calcutta.	Printed and published by Chandi Charan Ráya.
8858	Sachitra Dhárápát. Illustrated Arithmetical Tables.	ditto ...	Sarach Chandra Sil.	ditto ...	Printed and published at 29, Ahiritolá Street, Calcutta.	Printed and published by Nritya Lál Sil.
8859	Shishu Dhárápát. Arithmetical Tables for Children.	ditto ...	.....	ditto ...	Printed at 2, Tárak Chatterji's Lane, and published at 115, Chitpur Road, Calcutta.	Printed by Naba Kumár Basu, and published by Umesh Chandra Bhattácháryya.
8860	Saral Pátiganit. Easy Arithmetic.	ditto ...	P. Ghosh ...	ditto ...	Printed and published at 28, Convent Road, Intali.	Printed and published by Dwárakánath Nandan.
8861	Anka Sutra Pratham Bhág. The Elements of Mathematics. Part I.	ditto ..	Káshi Chandra Guha.	ditto ...	Printed and published at the Syamantak Press, Dacca.	Printed by Gopináth Basak, and published by Káshi Chandra Guha.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
May 5th	4	16mo dc	1st ...	15,000	Printed	.....	C. T. and B Society, 23, Chowringhee Road, Calcutta.	The balloonist can rise to the height of about 3 or 4 miles: but two men went to heaven in person and Jesus too went	8844
there. He will return with the whole host of angels, the dead will come to life, and he will take them to heaven.									
April, 3rd	8	12mo dy	10th...	5,000	ditto ...	.....	ditto ...	.....	8845
May, 9th	82	16mo dc	New	20,000	ditto ..	.....	ditto ...	A new translation in improved Bengali.	8846
Mar., 26th	4	8vo rl ...	1st ...	1,000	ditto ...	.....	Revd. W. Carey, Baptist Mission Press, Calcutta.	They should be read with eagerness, with regularity, with care, and with a devout heart.	8847
April, 28th	14	dy ...	1st ...	...	ditto ...	.....	Right Reverend F. Pozzi, Bishop of Krishnagore.	The Roman Catholic Catechism in Bengali.	8848
Mar., 18th	124	8vo dy..	2nd ...	1,010	ditto ...	0 12 0	M. R. Ahmed and Abdur Rahim.	Noticed in the Catalogue for the 4th quarter of 1888.	8849
Mar., 26th	171	12mo ...	9th...	3,000	ditto ...	0 8 0	Mohan Chandra Basák, Dacca.	.....	8850
May, 18th	102	12mo dy.	1st...	1,000	ditto ...	0 5 0	Durgá Charan Rá-ya, 54, College Street, Calcutta.	.....	8851
April, 10th	68	16mo rl.	6th..	10,000	ditto ...	0 3 0	Dinanáth Sen, Dacca.	.....	8852
„ 10th	178	12mo dy.	5th	4,000	ditto ...	0 5 0	Madhusudan Bhattácháryya, Raghunáthganj.	.....	8853
June, 4th	116	12mo dy.	1st...	1,000	ditto ...	0 8 0	Nilmani Sil, Panihati, 24-Pergunnahs.	.....	8854
May, 1st	32	12mo dy.	Revised.	1,000	ditto ...	0 1 0	Sarat Chandra Bhattácháryya, Calcutta.	.....	8855
„ 21st	37	12mo rl.	6th...	1,000	ditto ...	0 1 0	Baishnab Charan Basák, Calcutta.	.....	8856
Mar., 9th	32	12mo rl	1st ...	3,000	ditto ...	0 1 0	Abalá Kánta Sen, 50, Baranasi Ghosh's Street, Calcutta.	.....	8857
„ 6th	30	16mo ...	12th...	6,000	ditto ...	0 1 0	.....	.....	8858
April, 24th	22	12mo rl.	3rd ...	1,000	ditto ...	0 1 0	Umesh Chandra Bhattácháryya, Calcutta.	.....	8859
Mar., 25th	336	16mo ...	New..	3,000	ditto ...	0 12 0	P. Ghosh, 28, Convent Road, Entally.	.....	8860
„ 27th	28	12mo ...	1st ...	1,000	ditto ...	0 1 6	.....	.....	8861

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						BENGALI
	SCIENCE (MATHEMATICAL)—*concluded.*					
8862	Pratham Shikshá Ganit Arithmetic for Beginners.	Bengali	Hari Charan Bhattácháryya.	Science (Mathematical).	Printed and published at the Syamantak Press, Dacca.	Printed by Gopinath Basak, and published by Káshi Chandra Guha.
8863	Nutan Dhárápát. New Arithmetical Tables.	ditto ...	Kailásh Chandra Biswás.	ditto ...	Printed and published at Tangail, Mymensing.	Printed by, Sádhu Sarkár, and published by Chandra Kumár Lahirf.
8864	Sulabh Dhárápát. Easy Arithmetical Tables.	ditto ...	Prasanna Kumár Batabyál	ditto ...	Printed and published at Kumillá.	Printed and published by Nilámbar Datta.
	SCIENCE (NATURAL AND OTHER)					
8865	Kitkautuk. Entertaining account of worms.	ditto ...	Mahesh Chandra Tarkabágish.	Science (Natural and other)	Printed and published at 6, Balaram De's Street, Calcutta.	Printed and published by H. M. Mukharji and Company.
	The following works are designed for educational purposes.					
8866	Prakriti Bijnáner Prashnottar. A Catechism of Prakriti Bijnán.	ditto ...	Abalá Kánta Sen.	ditto ...	Printed and published at 66, Beadon Street, Calcutta.	Printed and published by Chandi Charan Ráya.
8867	Padártha Bidyá Bishayak Prashnottar. A Catechism of Natural Science.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8868	Prákritik Bhugoler Prashnottar. A Catechism of Physical Geography. Part I.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8869	Saral Padártha Bijnáner Prashnottar. Part I. A Catechism of Saral Padártha Bijnán.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8870	Bijnán Prabesh. Introduction to Science.	ditto ...	Krishna Chandra Banerji.	ditto ...	Printed at 24, Beadon Street, and published at 64, College Street, Calcutta.	Printed by Mani Mohan Rakshit, and published by Dás Gupta and Company.
8871	Sharir Pálan. Preservation of Health.	ditto ...	Jadunath Mukharji.	ditto ...	Printed at Ranaghát, and published at Calcutta.	Printed by Lakshmi Náráyan Dás, and published by the Sanskrit Press Depository.
8872	Saral Sharir Pálan. An Easy Work on Preservation of Health.	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
8873	Ditto ditto ..	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
8874	Prákritik Bhugol. Physical Geography.	ditto ...	Raya Rádhiká Prasanna Mukharji Bahadur.	ditto ...	Printed at 23-1, Bechu Chatterji's Street, and published at 143, Baranasi Ghosh's Street, Calcutta.	Printed by Jadu Nath Sil, and published by the Sanskrit Press Depository.
8875	Swásthya-rakshá Prabeshiká. Introduction to Principles of Hygiene.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
8876	Samkshipta Padártha Darshan. A Short Treatise on Natural Science.	ditto ...	Mahendra Náth Bidyáranya.	ditto ...	ditto ditto ...	ditto ditto ...
8877	Sachitra Bijnán Prabesher Prashnottar. A Catechism of Sachitra Bijnán Prabesh.	ditto ...	Bipin Chandra Sen.	ditto ...	Printed and published at 5, Nilmádhab Sen's Lane, Calcutta.	Printed and published by A. G. Sen and Company.
8878	Bijnán Prabesher Prashnottar. A Catechism of Bijnán Prabesh.	ditto ...	Mrigánkadhar Rayá Chaudhuri.	ditto ...	Printed at 63-3, Mechuabazar Road, and published at 64, College Street, Calcutta.	Printed by Gopál Chandra Niyogi, and published by Das Gupta and Company.

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 15th	24	12mo ..	2nd ...	2,000	Printed	0 1 6	.....	.....	8862
May, 2nd	12	12mo ...	3rd ..	2,000	ditto ...	0 2 6	Kailásh Chandra Biswás, Pathrail.	.....	8863
April, 20th	20	12mo ...	1st ..	2,000	ditto ...	0 0 6	.....	.....	8864
,, 7th	75	12mo dy	1st ...	500	ditto ...	0 8 0	Mahesh Chandra Tarkabágish, Múnkar.	A short treatise on the silk-worm of India.	8865
Mar., 13th	99	12mo rl	1st ...	1,000	ditto ...	0 6 0	Abalá Kánta Sen, 50, Baranasi Ghosh's Street, Calcutta.	.....	8866
Feb., 25th	134	12mo rl	1st ..	1,000	ditto ..	0 6 0	ditto ...	.....	8867
,, 21st	87	12mo rl	1st ...	1,000	ditto ..	0 6 0	ditto ...	.....	8868
,, 22nd	68	12mo rl	1st ...	1,000	ditto ...	0 4 0	ditto ...	.....	8869
April, 26th	98	12mo dy	2nd ...	6,000	ditto ...	0 6 0	.....	.....	8870
,, 1st	126	12mo rl	25th...	5,000	ditto ...	0 4 0	Jadunath Mukharji, Ránághat.	.....	8871
,, 1st	42	12mo dy	32nd	10,000	ditto ...	0 1 0	ditto ...	.....	8872
May, 28th	42	12mo dy	33rd...	10,000	ditto ...	0 1 0	ditto ...	.....	8873
Mar., 25th	144	12mo dy	25th...	6,000	ditto ...	0 6 0	Raya Rádhiká Prasanna Mukharji Bahadur, 30, Bechu Chatterji's Street, Calcutta.	.....	8874
April, 7th	48	12mo dy	11th .	3,000	ditto ...	0 2 0	ditto ..	.....	8875
Mar., 30th	84	12mo dy	8th ...	3,000	ditto ...	0 4 0	Mahendra Náth Bidyáranya, Calcutta.	.....	8876
May, 4th	68	12mo ...	1st ...	3,000	ditto ...	0 8 0	A. G. Sen, and Company.	.....	8877
April, 27th	38	12mo dy	1st ...	1,000	ditto ...	0 4 0	Mrigánkadhar Ráya Chaudhuri.	.....	8878

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI
	SCIENCE (NATURAL AND OTHER)—*concluded.*					
8879	Bhúbidyá Arthát Prákritik Bhúgoler Prashnottar. A Catechism of Bhubidyá.	Bengali	Kunja Bihári Banerji.	Science (Natural and other.)	Printed at 84, Rájá Rajballabh's Street, and published at 176H—17, Chitpore Road, Calcutta.	Printed by Naba Kumár Basu, and published by Kunja Bihari Banerji.
8880	Bijnán Prabesher Prashnottar. A Catechism of Bijnán Prabesh.	ditto ...	Akshahya Kumár Chattopadhyáya.	ditto ...	Printed and published at Barisal.	Printed and published by Hara Kumár Kar.
8881	Baijnánik Prashnottar. A Catechism of Science.	ditto ...	Madhu Sudhan Sen.	ditto ...	Printed and published at the Dacca Press, Dacca.	Printed by Digambar Dás, and published by Braja Das Bairági.
8882	Bijnán Prabesher Prashnottar. A Catechism of Bijnán Prabesha.	ditto ...	Prasanna Ghosh.	ditto ...	Printed and published at the Raghunath Press, Dacca.	Printed by Nanda Kisor Basák, and published by Prasanna Ghosh.
8883	Bhubidyár Prashnottar. A Catechism of Bhubidyá.	ditto ...	Káli Kumár Gángopádhyáya.	ditto ...	ditto ditto ...	Printed by Nanda Kisor Basák, and published by Káli Kumár Gángopadhyáya.
8884	Bijnán Prabesher Nirdishta Páthyer Prashnottar. A Catechism of the portion of Bijnan Prabesh selected for examination.	ditto ..	Srinath Pál ...	ditto ...	Printed and published at the Oriental Press, Dacca.	Printed and published by Rám Chandra Banik.
8885	Bijnán Prabesher Prashnottar. A Catechism of Bijnan Prabesh.	ditto ...	Dwáraká Nath Chakrabartti.	ditto ...	ditto ditto ...	Printed by Rám Chandra Banik, and published by Jogesh Chandra Chakrabartti.
8886	Saral Sharir Pálanar Artha O Prashnottar. A key to, and Catechism of, Saral Sarir Pálan.	ditto ...	Kunja Bihari Náth.	ditto ...	Printed and published at the Syámantak Press, Dacca.	Printed and published by Gopináth Basak.
8887	Saral Sharir Pálaner Prashnottar Sahit Byákhyá Pustak. A key to, and Catechism of, Saral Sarir Pálan.	ditto ...	Jagabandhu De.	ditto ...	Printed and published at the Girish Press, Dacca.	Printed by Kalimuddin, and published by Jagabandhu De.
						ENGLISH
	ART.					
1954	Cossipore Artillery Volunteers' Manual.	English	Lieut.-Colonel R. Wace.	Art ...	Printed at Thacker, Spink and Company's Press, and published at 5, Government Place, Calcutta.	Printed and published by Thacker, Spink and Company.
	FICTION.					
1955	Magaret Beresford and Her Lovers.	ditto ...	Miss Alice Lemarchand.	Fiction ...	Printed at 300, and published at 296, Bowbazar Street, Calcutta.	Printed by Cones and Company, and published by the Royal Publishing Company, Limited.
	HISTORY (INCLUDING GEOGRAPHY).					
	The following works are designed for educational purposes.					
1956	An Epitome of English History.	ditto ...	Upendra Náth Mukharji.	History ...	Printed and published at 17, Srináth Das's Lane, Calcutta.	Printed and published by A. L. Ghosh.
1957	A Brief Outline History of England.	ditto ...	Chandra Kánta Basu.	ditto ...	Printed and published at the Syamantak Press, Dacca.	Printed by Pratáp Chandra De, and published by Nilkantha Basu.
1958	A Faithful Sketch of English History.	ditto ...	.....	ditto ...	Printed at the New Bálmiki Press, and published at 14, Sankar Ghosh's Lane, Calcutta	Printed by U. C. Pál, and published by Sarat Chandra Bhadra.
1959	The Examinee's History of England.	ditto ...	Bhut Náth Bháduri.	ditto ...	Printed at 300, Bowbazar Street, and published at the Metropolitan Institution, Balakhana Branch.	Printed by Cones and Company, and published by the Author.

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—concluded									
1889.	Pages.					Rs. A. P.			
May, 8th	75	12mo dy	1st ...	1,000	Printed	0 4 0	Kunja Bihari Banerji, 176H—17, Chitpore Road, Calcutta.	A catechism	8879
June, 3rd	72	9×5 ...	1st ...	500	ditto ...	0 8 0	.. ...	ditto	8880
May, 12th	31	12mo dy	1st ...	1,000	ditto ...	0 6 0	.....	ditto	8881
„ 11th	43	12mo ...	1st ..	1,000	ditto ...	0 6 0	...	ditto	8882
„ 2nd	45	12mo dy	1st ...	1,000	ditto ...	0 6 0	.....	ditto	8883
„ 8th	36	12mo ...	1st ...	1,000	ditto ...	0 6 0	.....	ditto	8884
„ 7th	72	12mo ...	1st ..	1,000	ditto ...	0 10 0	.....	ditto	8885
April, 15th	36	12mo ...	1st ...	2,000	ditto ...	0 3 0	.....	ditto	8886
Feb., 28th	33	12mo ...	3rd ...	4,000	ditto ...	0 2 0	.....	ditto	8887
BOOKS.									
1889.									
May, 29th	233	12mo dy	1st ...	300	ditto ...	2 0 0	Lieut.-Colonel R. Wace.	.....	1954
Mar., 15th	68	32mo rl	1st ...	1,000	ditto ...	1 0 0	Miss Alice Lemarchand.	.....	1955
May, 15th	225	12mo dy	2nd ...	1,000	ditto ..	0 12 0	Shaik Brothers, 55, College Street, Calcutta.	.....	1956
April, 15th	234	12mo ...	1st ...	1,000	ditto ...	0 10 0	.. ...	.....	1957
„ 10th	76	12mo dy	1st ...	1,000	ditto ...	0 8 0	Sarat Chandra Bhadra, 14, Sankar Ghosh's Lane, Calcutta.	.....	1958
„ 22nd	92	8vo dy	1st ...	1,000	ditto ...	0 10 0	Bhut Nath Bháduri.	.....	1959

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						ENGLISH
	HISTORY (INCLUDING GEOGRAPHY)—*concld.*					
1960	A Catechism and Sketch of English History.	English	Rajendra Chandra Banerji.	History ...	Printed and published at Serampore.	Printed by Gangulí & Co. and published by Rajendra Chandra Banerji.
1961	A Catechism of English History.	ditto ..	Abalá Kánta Sen.	ditto ..	Printed and published at 66, Beadon Street, Calcutta.	Printed by Chandi Charan Ráya, and published by the Author.
1962	A Catechism of Indian History.	ditto ..	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1963	An Abridgment of the History of India.	ditto ...	Abdul Karim...	ditto ...	Printed and published at 43, Chunam Gulli, Calcutta.	Printed and published by N. C. Chakrabartti.
1964	Students' Companion to the History of India.	ditto ...	G. C. Mitra, M.A.	ditto ...	Printed at 78, and published at 55, College Street, Calcutta.	Printed by Ewijendra Náth Páre, and published by Asutosh Ghoshal & Co.
1965	A Concise Epitome of the History of India.	ditto ...	P. Gupta ...	ditto ...	Printed and published at 153, Cornwallis Street, Calcutta.	Printed by G. C. Chakrabartti, and published by G. C. Chakrabartti & Co.
1966	Questions on Indian History.	ditto ...	Upendra Náth Mukharji.	ditto ...	Printed at Uttarpara, and published at 55, College Street, Calcutta.	Printed by Shashi Bhushan Ghosh, and published by Shaik Brothers & Co.
1967	Outline of the History of Bengal. (R.)	ditto ...	J. C. Marshman, C.S.I.	ditto ..	Printed at 22-2, Jhamapukur Lane, and published at 54-1, College Street, Calcutta.	Printed and published by Baradá Prasád Majumdár.
1968	An Elementary General Geography.	ditto ...	Annadá Charan Sen.	ditto ...	Printed and published at the Adarsha Press, Dacca.	Printed by Lachman Basák, and published by Annadá Charan Sen.
1969	The First Geography ...	ditto ...	H. Blochmann, M.A.	ditto ...	Printed at the Baptist Mission Press, and published at 7, Dacre's Lane, Calcutta.	Printed by J. W. Thomas, and published by the Calcutta School-book Society.
	LANGUAGE.					
	The following works are designed for educational purposes.					
1970	A Junior English Grammar.	ditto ...	D. N. Basu ...	Language	Printed at 23-1, Bechu Chatterji's Street, and published at 148, Báránasi Ghosh's Street, Calcutta.	Printed by Jadu Náth Sil, and published by the Sanskrit Press Depository.
1971	First Book	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1972	Practical English Composition.	ditto ...	Umá Charan Ghosh.	ditto ...	Printed and published at Barisal.	Printed by Hara Kumár Kar, and published by Umá Charan Ghosh.
1973	A Catechism of Elementary English Grammar.	ditto ...	James A. Leary	ditto ...	Printed and published at the Victoria Press, Cuttack.	Printed and published by Abhin Náyak.
1974	Macaulay's Lord Clive. (R.)	ditto ...	Edited by Asutosh Mitra.	ditto ...	Printed at 78, Amherst Street, and published at 79, Cornwallis Street, Calcutta.	Printed by Ambiká Charan Shem, and published by the Star Depository.
1975	Essays written in the intervals of business. (R.)	ditto ...	Edited by Nagendra Nath Mukharji.	ditto ...	Printed at 6, Simla, Street, and published at 64, College Street, Calcutta.	Printed by P. C. Shaha, and published by H. B. Mukharji & Co.
1976	Notes on Grant's Xenophon.	ditto ...	P. K. Lahiri, M.A.	ditto ...	Printed at 108, Báránasi Ghosh's Street, and published at 54, College Street, Calcutta.	Printed by Nabin Chandra Pal, and published by S. K. Lahiri & Co.
1977	Notes on Helps' Essays	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...

Quarter ending 30th June 1889—continued.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
Mar., 26th	100	8vo dy...	1st ...	1 000	Printed	0 8 0	Ganguli & Co., Máhes.	.....	1960
„ 6th	178	12mo rl	1st ...	1,000	ditto ...	0 10 0	Abalá Kánta Sen, 50, Báránasi Ghosh's Street, Calcutta.	.....	1961
„ 18th	106	12mo rl	3rd ...	2,000	ditto ...	0 8 0	ditto ...	.....	1962
April, 26th	77	8vo dy...	1st ...	1,000	ditto ...	0 10 0	Abdul Karim, 30, Lower Chitpore Road, Calcutta	.....	1963
Mar., 16th	120	12mo dy	1st ...	2,000	ditto ...	0 10 0	Asutosh Ghoshál & Co., 55, College Street, Calcutta.	.....	1964
June, 3rd	120	12mo dy	1st ..	.....	ditto ...	0 8 0	P. Gupta, 13, Nebutala Lane, Calcutta.	.....	1965
Mar., 30th	141	12mo dy	3rd ...	1,000	ditto ...	0 12 0	Shaik Brothers & Co., 55, College Street, Calcutta.	.....	1966
„ 20th	213	16mo ...	3rd ..	500	ditto ...	1 0 0	Baradá Prasád Majumdár, 22-2, Jhamapukur Lane, Calcutta.	.....	1967
April, 10th	116	12mo ..	1st ..	1,000	ditto ...	0 8 0	.....	.....	1968
„ 25th	48	12mo dy	Revised.	5,000	ditto ...	.....	Calcutta School-book Society, 7, Dacre's Lane, Calcutta.	A well-known work ...	1969
Mar., 27th	240	16mo d f cap.	4th ...	5,000	ditto ...	0 4 0	Dwáraká Náth Basu, Barackpore.	Designed for the use of students of middle class English schools in India, who find it difficult to understand grammars written in England for the use of boys whose mother-tongue is English.	1970
April, 6th	64	16mo d f cap.	2nd ..	3,000	ditto ...	0 3 0	ditto ...	In this book attempts have been made to give the different sounds of vowels, diphthongs and consonants as clearly as possible by indicating their sounds in Bengali.	1971
„ 29th	143	12″×6″	2nd ...	2,000	ditto ...	0 9 0	.....	.....	1972
„ 10th	35	16mo f cap.	1st ...	1,000	ditto ...	0 2 0	.....	.....	1973
„ 30th	84	12mo dy	1st ...	1,000	ditto ...	0 4 0	Asutosh Mitra, 78, Amherst Street, Calcutta.	.....	1974
May, 10th	230	16mo crown	1st ...	1,000	ditto ...	1 6 0	H. B. Mukharji & Co., 64, College Street, Calcutta.	A key	1975
„ 12th	72	12mo dy	1st ...	1,500	ditto ...	0 10 0	Prasanna Kumar Lahiri, 91, Balaram De's Street, Calcutta.	ditto	1976
„ 2nd	105	12mo ...	1st ...	1,500	ditto ...	0 10 0	ditto ...	ditto	1977

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						ENGLISH
	LANGUAGE—*concld.*					
1978	Notes on Helps' Essays	English	Nil Kantha Majumdár.	Language	Printed at 45, Beniatola Lane, and published at 66, College Street, Calcutta.	Printed by B. B. Majumdár, and published by Chatterji brothers.
1979	A Key to Thomson's Winter.	ditto ...	Shashi Bhushan Sen.	ditto ...	Printed at 21, Sitárám Ghosh's Street, and published at 54, College Street, Calcutta.	Printed by Shashi Bhushan Datta, and published by the Somprakásh Depository.
1980	A Key to the English Entrance Course, 1890. Part I.	ditto ...	A. T. Banerji, B.A.	ditto ...	Printed and published at 10, Dacre's Lane, Calcutta.	Printed and published by A. Ayre.
1981	Ditto ditto. Part II.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1982	Model Questions on the Entrance Course, 1890.	ditto ...	H. C. Sur ...	ditto ...	Printed and published at 102, Radha Bazar, Calcutta.	Printed and published by Sharat Chandra Gopi Mohan.
1983	A Key to the Entrance Course, 1890. Part II.	ditto ...	S. P. Ghosh, M.A.	ditto ...	Printed at 23-1, Bechu Chatterji's Street, and published at 1, Jeliatola Lane, Calcutta.	Printed by Jadu Náth Sil, and published by S. N. Ráya.
1984	A Complete Key to the English Entrance Course for 1890. Part II.	ditto ...	N. L. De and U. L. De.	ditto ...	Printed at Serampore and published at Calcutta.	Printed and published by Jitendra Nath De.
1985	An English Spelling Book.	dit ...	Lindley Murray.	ditto ...	Printed at 22-1, Jhamapukur Lane, and published at 54-1, College Street, Calcutta.	Printed and published by Baradá Prasad Majumdár.
1986	Notes on Excelsior Reader.	ditto ...	Jádab Chandra Bose.	ditto ...	Printed at 6, Simla Street, and published at 25, Cornwallis Street, Calcutta.	Printed by Prem Chánd Sháhá, and published by B. Banerji & Co.
	LAW.					
1987	The Bengal Tenancy Act	ditto ...	Edited by R. F. Rampini and M. Finucane.	ditto ...	Printed at Thacker, Spink & Co.'s Press, and published at 5, Government Place, Calcutta.	Printed and published by Thacker, Spink & Co.
1988	Comparative Criminal Jurisprudence. Vol. I.	ditto ...	H. A. D. Phillips.	ditto ...	ditto ditto ...	ditto ditto ...
1989	Ditto ditto. Vol. II.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1990	A Digest of the Cases reported in the Indian Law Reports, Calcutta Series.	ditto ...	Baradá Prasád Chatterji.	ditto ...	Printed at 21, Sitárám Ghosh's Street, and published at 54, College Street, Calcutta.	Printed by Shashi Bhushan Datta, and published by the Somprakásh Depository.
1991	The Code of Civil Procedure.	ditto ...	Edited by Nrisinharám Mukharji.	ditto ...	Printed and published at Serampore.	Printed by Shashi Bhushan Ghosh, and published by Nrisinharám Mukharji.
1992	Index to all Acts and Regulations relating to the Lower Provinces and to the Stamp duties payable on documents in ordinary use.	ditto ...	F. H. Skrine ...	ditto ...	Printed and published at 9, Hare Street, Calcutta.	Printed and published by S. N. Banerji.
1993	The Court Fees Act ..	ditto ...	Jiban Krishna Ghosh.	ditto ...	Printed at 249, Bowbazar Street, and published at Bhawanipore.	Printed by I. C. Bose and Company, and published by Jiban Krishna Ghosh.
1994	The Civil Court Companion. Vol. I.	ditto ...	Edited by Bámápada Mukharji.	ditto ...	Printed and published at Shibpore.	Printed by S. C. Nág, and published by H. J. Haldár.

Quarter ending 30th June 1889—continued.

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Date of issue from the press or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright or any portion of it.	REMARKS.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
Mar. 4th	259	12mo ...	1st ...	.....	Printad	1 4 0	Bhudhar Chatterji, 66, College Street, Calcutta.	A key	1978
May 9th	48	12mo dy.	1st ...	1,000	ditto ...	0 5 0	Shashi Bhushan Datta, Sukea's Street, Calcutta.	ditto	1979
April 5th	192	12mo dy.	1st ...	800	ditto ...	1 12 0 for 2 parts.	A. T. Banerji, Bhawanipore.	ditto	1980
„ 5th	270	12mo dy.	1st ...	800	ditto ...	.....	ditto ...	.....	1981
„ 9th	316	12mo dy.	1st ...	1,000	ditto ...	1 0 0	Hem Chandra Sur, 7, Gopi Mohan Datta's Lane, Calcutta.	.....	1982
„ 24th	228	12mo dy.	1st ...	2,000	ditto ...	2 0 0	Sáradá Prasád Ghosh, 1, Jeliatola Lane, Calcutta.	.....	1983
Mar. 27th	198	12mo dy.	1st ..	1,000	ditto ...	.....	N. L. De and U. L. De, Calcutta.	.....	1984
April 2nd	88	12mo ...	3rd ...	1,000	ditto ...	0 4 0	Baradá Prasad Majumdár, 22-2, Jhamapukur Lane, Calcutta.	.....	1985
„ 15th	72	12mo dy.	1st ...	250	ditto ...	0 6 0	Jádab Chandra Bose, 46, Simla Street, Calcutta.	A key	1986
April 30th	406	8vo dy.	2nd ...	1,000	ditto ...	7 0 0	R. F. Rampini and M. Finucane.	With notes and annotations, judicial rulings, the rules made under the Act by the Local Government, the High Court, and the Registration Department, and the forms of registers prescribed by the Board of Revenue.	1987
„ 29th	319	8vo dy.	1st ...	560	Printed	12 0 0	H. A. D. Phillips	The book has been written rather for the criminal jurist than for the practising lawyer. It brings to notice the provisions of Continental Criminal Codes and compares them with the Indian law that it may be of some service to the Legislative Department of the Government of India.	1988
„ 29th	302	8vo dy.	1st ...	560	Printed	.....	ditto ...	This volume treats of the adjective law.	1989
„ 25th	360	8vo sl....	1st ...	1,500	ditto ...	2 0 0	Baradá Prasád Chatterji, Kulna.	From Volume X to Volume XIII, with a supplement containing a digest of the cases reported in Volumes XIV and XV.	1990
Mar. 14th	226	8vo rl....	1st ...	1,500	ditto ...	1 4 0	Nrisinharám Mukharji, Uttarpara.	As amended up to 20th September 1888.	1991
April 1st	72	8vo rl....	1st ...	500	ditto ...	1 0 0	F. H. Skrine, Rungpore.	Published for the benefit of the China famine relief fund.	1992
„ 2nd	4	8vo dy.	1st ...	500	ditto ...	.....	Jiban Krishna Ghosh, 49, Jeliapara Road, Bhawanipore.	Act VIII of 1870 ...	1993
1888. Nov. 10th	700	8vo crown.	1st ...	1,000	ditto ...	4 0 0	Bámápada Mukharji, Shibpore, Howrah.	.....	1994

Number.	2 Title (to be translated into English when the title-page is not in that language).	3 Language in which the book is written.	4 Name of author, translator, or editor of the book or any part of it.	5 Subject.	6 Place of printing and place of publication.	7 Name or firm of printer and name or firm of publisher.
						ENGLISH
	MEDICINE.					
1995	A Manual of Homœopathic Pharmacopœia.	English	Rajendra Lál Sur.	Medicine E.	Printed at Tala, and published at Shambazar, Calcutta.	Printed by Purna Chandra Bose, and published by Rajendra Lál Sur.
	MISCELLANEOUS.					
1996	Thacker's Indian Directory, 1889.	ditto ...	.....	Miscellaneous.	Printed at Thacker, Spink & Co.'s Press, and published at 5, Government Place, Calcutta.	Printed and published by Thacker, Spink & Co.
1997	Indian Tea, Indigo, Silk and Coffee Concerns; Sugar, Lac, and Cinchona Plantations.	ditto ...	.....	ditto ...	ditto ditto ...	ditto ditto ...
1998	Angling in the Kumaun Lakes.	ditto ...	W. Walker, M.D.	ditto ...	ditto ditto ...	ditto ditto ...
1999	The Training and Management of Chargers.	ditto ...	J. W. King ...	ditto ...	ditto ditto ...	ditto ditto ...
2000	Phrenological Relations of Theories traceable in regard to the Principles of Causality and Conscientiousness.	ditto ...	Narsing Chandra Haldar.	ditto ...	Printed and published at 19, Lalbazar Street, Calcutta	Printed and published by C. J. A. Pritchard.
2001	Pay Tables of the British Army in India.	ditto ...	Adam Smith ...	ditto ...	Printed at 5, Council House Street, and published at the Pay Examiner's Office, Calcutta	Printed by the Calcutta Central Press Co., Ld., and published by Adam Smith.
2002	Prospectus and Plan of Elson's Maritime Code of Signals.	ditto ...	S. R. Elson ..	ditto ...	Printed and published at 9, Hare Street, Calcutta.	Printed and published by S. N. Banerji.
2003	Tables of Income, Wages, and Rent.	ditto ...	B. B. Mukharji.	ditto ...	Printed and published at 10, Dacre's Lane, Calcutta.	Printed and published by Alexander Ayre.
2004	A Primer of Commercial and Economic Education.	ditto ...	F. W. Quanbrough.	ditto ...	Printed and published at 20, British Indian Street, Calcutta.	Printed and published by D. M. Trail.
2005	The Voice of Hope ...	ditto ...	G. C. Ghosh ...	ditto ...	Printed at 78, College Street, and published at Cooch Behar.	Printed by Dwijendra Nath Pâre, and published by G. C. Ghosh.
	The following works are designed for educational purposes.					
2006	The Government of India	ditto ...	.....	ditto ...	Printed at Thacker Spink & Co.'s Press, and published at 5, Government Place, Calcutta.	Printed and published by Thacker, Spink & Co.
2007	Calcutta University F. A. Papers and Allahabad University Intermediate Examination Papers for 1889.	ditto ...	.....	ditto ...	Printed at 78, Amherst Street, and published at 143, Cornwallis Street, Calcutta.	Printed by Ambikâ Charan Shom, and published by the Star Depository.
	PHILOSOPHY.					
	The following work is designed for educational purposes.					
2008	An Analysis of Sully's Outlines of Psychology.	ditto ...	Girish Chandra Nâg.	Philosophy	Printed at 29-1, Mir Jaffer's Lane, and published at 54, College Street, Calcutta.	Printed by Shashi Bhushan Datta, and published by the Somprakâsh Depository.

Quarter ending 30th June 1889—continued.

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Date of issue from the press or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages					Rs. A. P.			
May 22nd	13	12mo ...	3rd ...	500	Printed	0 4 0	Rajendra Lál Sur, Shambazar, Calcutta.	.....	1995
Mar. 29th	1,411	8vo dy.	1st ...	1,750	ditto ...	16 0 0	Thacker, Spink & Co.	.....	1996
April 30th	96	8vo dy.	1st ..	150	ditto ...	2 8 0	ditto ...	.....	1997
„ 28th	105	8vo dy.	1st ..	500	ditto ...	4 0 0	W. Walker, M D.	With a map of the Kumaun Lake Country.	1998
Feb. 25th	41	16mo dy.	1st ...	750	ditto ...	1 8 0	J. W. King ..	Some useful hints in the matter of training and management of chargers by one who served 12 years as a volunteer mostly in the Behar Light Horse, the finest Corps in India.	1999
May 2nd	½ sheet...	½ sheet fcap.	1st ...	100	Printed	0 1 0	Narsing Chandra Halder, Bhawanipore.	.....	2000
Mar. 22nd	32	8vo dy.	10th...	800	ditto ...	1 0 0	Adam Smith, 1, Kaila Ghát Street, Calcutta.	.....	2001
May 22nd	12	8vo rl.	1st ...	500	ditto ...	.....	S. R Elson, 71, Diamond Harbour Road, Calcutta.	.....	2002
„ 15th	91	16mo dy.	1st ...	2,000	ditto ...	0 8 0	B. B. Mukharji, Behala.	.....	2003
April 1st	147	12mo dy.	1st ...	5,000	ditto ...	1 8 0	F. W. Quanbrough, Lahore.	A very useful publication for those who have to depend on their individual efforts as the only means of success in life.	2004
Mar. 28th	45	12mo dy.	1st ...	500	ditto ...	.....	G. C. Ghosh, Cooch Behar.	Two essays, one on the effects of English education and the other on female education.	2005
„ 30th	72	12mo ...	2nd ...	1,000	ditto ...	0 8 0	Horace Bell ...	An improved edition, in the preparation of which the author had the advantage of consulting Sir John Strachey's work entitled *India*.	2006
May 13th	12	12mo dy.	1st ...	.....	ditto ...	0 0 6	Star Depository, 143, Cornwallis Street, Calcutta.	.....	2007
June 2nd	86	12mo dy.	1st ...	1,000	ditto ...	0 12 0	Girish Chandra Nág, Ravenshaw College, Cuttack.	.....	2008

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer and name or firm of publisher.
						ENGLISH
	POETRY. *The following works are designed for educational purposes.*					
2009	Poetical Class Book. No. I. (R.)	English	Compiled by Rai Rádhiká Prasanna Mukharji, Bahadur.	Poetry ...	Printed at 23-1, Bechu Chatterji's Street, and published at 148, Baranasi Ghosh's Street, Calcutta.	Printed by Judu Nath Sil, and published by the Sanskrit Press Depository.
2010	Milton's Paradise Lost, Book I, Wordsworth's Excursion, Book I, and Thomson's Winter. (R.)	ditto ...	Edited by P. K. Lahiri, M.A.	ditto ...	Printed at 108, Baranasi Ghosh's Street, and published at 54, College Street, Calcutta.	Printed by N. C. Pál, and published by S. K. Lahiri & Co.
2011	Milton's Paradise Lost, Book I. (R.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2012	Paradise Lost, Book I. (R.)	ditto ...	Edited by Nagendra Náth Mukharji.	ditto ...	Printed at 300, Bowbazar Street, and published at 64, College Street, Calcutta.	Printed by Cones & Co., and published by H. B. Mukharji & Co.
2013	Thomson's Seasons. Winter. (R.)	ditto ...	Edited by G. A. Lorimer, M.A.	ditto ...	Printed at 6, Simla Street, and published at 64, College Street, Calcutta.	Printed by P. C. Sháhá, and published by H. B. Mukharji & Co.
2014	Selected Poems. (R.) ...	ditto ...	Edited by Madhu Sudan Sen.	ditto ...	Printed and published at the Giris Press, Dacca.	Printed by Kalimuddin, and published by Madhu Sudan Sen.
	POLITICS.					
2015	The Thoughts and Reflections of an Indian in England arising out of the Debate on the Indian Budget for 1888-89.	ditto ...	Párbati Charan Ráya.	Politics ...	Printed and published at the East Bengal Press, Dacca.	Printed by K. D. Basak, and published by Párbati Charan Ráya.
2016	The Indian Political Register. Part I. No. 1.	ditto ...	Rajani Kánta Ghosh.	ditto ...	Printed and published at 10, Padmapukur Road, Bhawanipore.	Printed and published by K. N. Mitra.
	RELIGION.					
2017	The Mahabharata. Part 48. (T.)	ditto ...	Translated by Pratáp Chandra Ráya.	Religion, H.	Printed and published at 1, Raja Gurudas' Street, Calcutta.	Printed by Kalidás Sen, and published by Pratáp Chandra Ráya.
2018	Ditto. Part 49. (T.) ...	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2019	Ditto. Part 50. (T.) ...	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2020	God's Dealings in the Life of a Sinner. (T.)	ditto ...	Shashi Bhushan Mallik.	ditto, B. ...	Printed and published at the East Bengal Press, Dacca.	Printed by K. D. Basak, and published by Shashi Bhushan Mallik.
2021	The New Dispensation ...	ditto ...	Banga Chandra Ráya.	ditto ...	ditto ditto ...	Printed by K. D. Basak, and published by Banga Chandra Ráya.
	SCIENCE (MATHEMATICAL). *The following works are designed for educational purposes.*					
2022	Hints on the Study of Mathematics.	ditto ...	R. D. Banerji	Science (Mathematical).	Printed and published at Serampore.	Printed and published by Jitendra Náth De.
2023	The Students' Algebra. Part I.	ditto ...	Chuni Lál Sil	ditto ...	Printed at 6, Simla Street, and published at 25, Cornwallis Street, Calcutta.	Printed by Prem Chánd Sháhá, and published by B. Banerji & Co.
2024	Progressive Papers in Algebra with Solutions.	ditto ...	Hara Náth Bhattácháryya.	ditto ...	Printed at 23-1, Bechu Chatterji's Street, and published at 55, College Street, Calcutta.	Printed by Jadu Náth Sil, and published by J. C. Banerji.

Quarter ending 30th June 1889—continued.

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Date of issue from the press or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or litho-graphed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	REMARKS.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
Mar. 29th	48	12mo dy.	12th...	2,000	Printed	0 8 0	Rai Rádhiká Prasanna Mukharji, Bahadur, 30, Bechu Chatterji's Street, Calcutta.	A well-known school book ..	2009
May 12th	311	12mo ...	1st ...	2,000	ditto ...	1 10 0	Prasanna Kumár Lahiri, 91, Balarám De's Street, Calcutta.	With Notes	2010
„ 8th	102	12mo. ..	1st ...	1,000	ditto ...	0 8 0	ditto ...	ditto	2011
June 1st	120	16mo crown.	1st ...	1,000	ditto ...	1 0 0	Nagendra Náth Mukharji.	ditto	2012
May 12th	125	16mo crown.	1st ...	1,000	ditto ...	1 0 0	H B. Mukharji & Co., 64, College Street, Calcutta.	.....	2013
Mar. 15th	14	.....	1st ..	1,000	ditto ...	0 1 6	.....	.....	2014
May 28th	13	8vo ...	1st ...	200	ditto ...	0 2 0	.....	Being chiefly a defence of educated Indians against the charge of disloyalty brought forward by Sir Richard Temple.	2015
Mar. 14th	32	8vo dy.	1st ...	2,000	ditto ...	0 4 0	R. K. Ghosh, 36, Baláram Bose's Lane, Bhawanipore.	Being a collection of extracts from public documents, letters, minutes and speeches of British and Anglo-Indian Statesmen relating to Indian affairs. This part treats of England's duties to India.	2016
Mar. 16th	72	8vo dy.	1st ...	4,000	ditto ...	.....	Pratáp Chandra Ráya.	Goes on with the Dronaparba ...	2017
„ 25th	72	8vo dy.	1st ...	4,000	ditto ...	.....	ditto ..	ditto ditto ...	2018
April 25th	72	8vo dy.	1st ...	3,500	ditto ...	.....	ditto ...	Dronaparba ends and Karnaparba commences in this part.	2019
June 12th	124	12mo ...	1st ...	500	ditto ...	0 10 0	.....	A translation of the Bengali work entitled *Pápír Jibane Bhagabáner Lilá.*	2020
May 22nd	32	.....	1st ...	200	ditto ...	0 2 0	.....	Its spiritual aspect	2021
„ 12th	360	12mo dy.	2nd ...	500	ditto ...	1 8 0	R. D. Banerji Serampore.	.....	2022
April 12th	504	12mo dy.	2nd ...	504	ditto ...	1 8 0	Chuni Lál Sil, 46, Simla Street, Calcutta.	.....	2023
„ 17th	256	12mo dy.	1st ...	1,000	ditto ...	1 4 0	Hara Náth Bhattácháryya, Calcutta.	.....	2024

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						ENGLISH
	SCIENCE (MATHEMATICAL—*concld.*					
2025	The Elements of Algebra. Part I.	English	P. Ghosh ...	Science (Mathematical).	Printed and published at 28, Convent Road, Entali.	Printed and published by Dwáraká Náth Nandan.
2026	The Elements of Arithmetic.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2027	The Elements of Mental Arithmetic.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2028	A Syllabus of the Elements of Modern Geometry.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2029	Euclid's Elements of Geometry. Books I to IV.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2030	Ditto. Books V, VI, XI, and XII.	ditto ...	ditto ...	ditte ...	ditto ditto ...	ditto ditto ...
2031	A Sequel to the Elements of Euclid.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
	SCIENCE (NATURAL AND OTHER). *The following works are designed for educational purposes.*					
2032	An Introduction to Science.	ditto ...	Kali Kumár Dás.	Science (Natural and other).	Printed and published at 38, Ram Mohan Datta's Road, Bhawanipore.	Printed by B. M. Bose. and published by Jogesh Chandra Banerji.
2033	Students' Guide to the Rudiments of Science.	ditto ...	Jogendra Nath Banerji.	ditto ...	Printed at 109, and published at 55, College Street, Calcutta.	Printed by Umá Charan Chakrabartti, and published by J. C. Banerji.
2034	A Companion to the Science Primer.	ditto ...	S. N. Banerji and K. P. Sen.	ditto ...	Printed at 62-2, Beadon Street, and published at 3, Santiram Ghosh's Street, Calcutta.	Printed by Nepál Chandra Dás, and published by Hari Charan Dás.
2035	A Companion to the Study of Science.	ditto ...	A. C. Sen, B.A.	ditto ...	Printed at 92, Bow Bazar Street, and published at 54, College Street, Calcutta.	Printed by Kisori Mohan Sen, and published by S. K. Lahiri & Co.
2036	A Companion to Introductory (?)	ditto ...	Hem Chandra Niyogi.	ditto ...	Printed and published at the Danapur Central Press.	Published by Hem Chandra Niyogi.
2037	A Guide to Physical Geography.	ditto ...	Bipin Bihari Dás.	ditto ...	Printed at 113, Grey Street, and published at 70, College Street, Calcutta.	Printed by A. C. Hazra, and published by Biswas and Sons.
2038	Ditto ditto ...	ditto ...	Jajneswar Bagchi.	ditto ...	Printed and published at 8, Muktaram Babu's Street, Calcutta.	Printed and published by Adhar Chandra Ghosh.
2039	Students' Guide to Physical Geography.	ditto ...	Jogendra Náth Banerji ...	ditto ...	Printed at 109, and published at 55, College Street, Calcutta.	Printed by Umá Charan Chakrabartti, and published by J. C. Banerji.
	TRAVELS AND VOYAGES.					
2040	A Visit to Europe ...	ditto ...	T. N. Mukharji.	Travels and Voyages.	Printed at 132, Lower Circular Road, and published at 4, Dalhousie Square, Calcutta.	Printed by J. Larkins, and published by W. Newman & Co.
	book is full of interesting observations on men and things in England. Though he greatly admires English should, yet he points out certain defects in the political and social regulations of the English people. His products of one country in the other is very interesting.					
						HINDI
	ART.					
931	Khetí Bárí. A Book on Agriculture. Part I.	Hindi ...	Umánáth Misrá.	Art ...	Printed and published at the Khargabilas Press, Bankipore,	Printed and published by Shaheb Prasad Sinha.
932	Khetnáp Mensuration.	ditto ...	Gopilál ...	ditto ...	ditto ditto ...	ditto ditto ...

Quarter ending 30th June 1889—continued.

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BOOKS—concluded.									
1889.	Pages.					Rs. A. P.			
Mar., 20th	370	16mo ...	12th,...	5,000	Printed	1 8 0	P. Ghosh, 28, Convent Road, Entali.	.....	2025
„ 15th	498	16mo ...	13th...	10,000	ditto ...	1 8 0	ditto ...	.....	2026
„ 12th	50	13mo ...	New	3,000	ditto ...	0 2 0	ditto ...	.....	2027
„ 5th	76	16mo ...	New	200	ditto ...	0 8 0	ditto ..	.....	2028
„ 3rd	382	16mo ...	11th .	4,500	ditto ..	1 4 0	ditto ...	.....	2029
„ 17th	218	16mo ...	3rd ...	2,000	ditto ...	1 0 0	ditto ...	.....	2030
„ 8th	103	16mo ...	New	200	ditto ...	1 0 0	ditto ...	.....	2031
„ 8th	58	12mo dy	1st ..	2,000	ditto ...	0 6 0	Kali Kumár Dás, Boalia, Rajshahye.	Designed for the use of students apreparing for the Entrance Exmination.	2032
Feb., 12th	40	12mo dy	1st ..	2,000	ditto ...	0 5 0	Jogendra Nath Banerji, Nimta.	ditto ditto ...	2033
May, 4th	45	12mo dy	1st ...	1,000	ditto ...	0 5 0	S. N. Banerji, 37, Kási Mitra's Ghát Street, and K. P. Sen, 9, Ram Chandra Mitra's Lane, Calcutta.	ditto ditto ...	2034
April, 28th	53	12mo dy	1st ...	1,000	ditto ...	0 6 0	A. C. Sen, B.A., 1-1, Srinath Das's Lane, Calcutta,	ditto ditto ...	2035
Feb., 15th	33	...	1st ...	1,000	ditto ...	0 5 0	... ..	ditto ditto ...	2036
May, 2nd	72	12mo ...	1st ..	1,000	ditto ..	0 7 0	....	ditto ditto ...	2037
April, 2nd	80	8vo dy	1st ...	1,000	ditto ..	0 8 0	Adhar Chandra Ghosh, 80, Muktaram Babu's Street, Calcutta.	ditto ditto ...	2038
Mar., 1st	78	12mo dy	1st ...	2,000	ditto ...	0 8 0	Jogendra Nath Banerji, Nimta	ditto ditto ...	2039
„ 29th	404	12mo dy	1st ...	500	ditto ...	3 0 0	T. N. Mukharji F L.S.	The writer was deputed by the Government of India to the Colonial and Indian Exhibition held in London in 1886. The	2040
society, and expresses his regret that his countrymen do not benefit by their contact with Englishmen as fast as they suggestions for improving the position of the poorer classes of both England and India by popularising the cheap									
BOOKS.									
Mar., 18th	106	12mo dy	1st ...	1,000	ditto ...	0 6 0	Umánáth Misrá, Samkoora, Patna.	A short treatise on agriculture and gardening.	931
„ 20th	22	12mo dy	th ...	2,000	ditto ...	0 2 0	Gopináth, Pachgachia, Bhagulpore.	.....	932

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						HINDI
	DRAMA.					
933	Indar Sabhá. The Court of Indra.	Hindi ...	.....	Drama ...	Printed and published at 99, Ahiritola Street, Calcutta.	Printed and published by Nrityalál Sil.
934	Satya Harischandra Nátak. A Drama describing the career of Rájá Harischandra, the Truthful.	ditto ..	Harischandra.	ditto ...	Printed and published at the Khargabilas Press, Bankipore.	Printed and published by Saheb Prasad Sinha.
935	Bál Khel ba Dhruba Charitra. The career of Dhruba, for the Amusement of children.	ditto ...	Damodar Shástri ...	ditto ...	ditto ditto ...	ditto ditto ...
	FICTION.					
936	Betál Pachchisi. Twenty-five Tales of the Demon. (R.)	ditto ...	Edited by Nabin Misra.	Fiction ...	Printed at 323, Chitpore Road, and published at 40, Garanhátá Street, Calcutta.	Printed by Tinkari Biswas, and published by Panchánan Ghosh.
937	Hatemtai. The Story of the Emperor Hatem. (T.)	ditto ..	.....	ditto ...	Printed at 339, and published at 326, Upper Chitpore Road, Calcutta.	Printed by Kaliprasanna Ráya, and published by Shyamlál Sil.
938	Ditto ditto (T.)	ditto ...	.....	ditto ...	Printed and published at 99, Ahiritola Street, Calcutta.	Printed and published by Nrityalál Sil.
939	Gulavákáwali. The Bakawali Flower. (T.)	ditto ...	.....	ditto ...	ditto ditto ...	ditto ditto ...
940	Kissá Afimchi ká. The Story of an Opium-eater.	ditto ...	Srídhar Bhát.	ditto ...	ditto ditto ...	ditto ditto ...
941	Triyá Charít. Stories relating to female character.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
942	Betál Pachchisi. Twenty-five Tales of the Demon. (T.)	ditto ..	Lalu Lal ..	ditto ...	ditto ditto ...	ditto ditto ...
	HISTORY (INCLUDING GEOGRAPHY).					
	The following works are designed for educational purposes.					
943	Bhugol Bidyá kí Pahili Pustak. The First Book on Geography.	ditto ...	Revd. A. Turnbull.	History (including Geography).	Printed and published at Lochnagar, Darjeeling.	Printed and published by N. L. Ráya.
944	Bháratbarsa ká Naksá. Map of India.	ditto ...	Debendra Nath Dhar.	ditto ...	Printed and published at 40, Báránasi Ghosh's Street, Calcutta.	Printed and published by Debendra Náth Dhar.
	LANGUAGE.					
	The following works are designed for educational purposes.					
945	Sáhitya Samgraha ki Kunji. A complete key to Babu Bireswar Chakrabarti's Sáhitya Samgraha.	ditto ...	Piyárilál and Rám Lal.	Language	Printed at 105, Cotton Street, Calcutta, and published at the Mission School, Ranchi.	Printed by Bechulál Gupta, and published by Piyárilál.
946	Nitisár. Moral Lessons.	ditto ...	Munshi Ganesh Prasád.	ditto ...	Printed and published at Durbhunga.	Printed by Nirod Chandra Mukharji, and published by Munshi Ganesh Prasád.
947	Bháshásár. The Substance of Language.	ditto ...	Saheb Prasád Sinha.	ditto ...	Printed and published at the Kargabilas Press, Bankipore.	Printed and published by Saheb Prasad Sinha.

Quarter ending 30th June 1889—continued.

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BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
Mar., 13th	44	12mo ...	4th ...	2,000	Printed	0 1 0	.....	A well-known drama ...	933
May, 10th	60	8vo rl ...	2nd ...	2,000	ditto ...	0 6 0	Ramdin Sinha, Khargabilas Press, Bankipore.	Based on the story of Rájá Harischandra, who gave away his kingdom and sold himself to slavery in order to keep his promise to Bisvámitra.	934
Mar., 21st	24	12mo dy	1st ...	500	ditto ...	0 2 0	ditto ...	....	935
„ 7th	120	12mo rl	1st ...	1,000	ditto ...	0 4 0	Panchánan Ghosh Calcutta.	.....	936
April, 17th	238	8vo rl ...	Revised.	1,000	ditto ...	0 14 0	Shyamlál Sil, Calcutta.	.....	937
Mar., 24th	254	8vo ...	4th ...	2,000	ditto ...	0 5 0	.....	.....	938
„ 24th	99	8vo ...	3rd ...	2,000	ditto ...	0 2 6	.....	.....	939
„ 18th	28	12mo ...	3rd ...	2,000	ditto ...	0 1 0	.....	A number of humorous stories about the oddities of opium-eaters.	940
„ 26th	60	12mo ...	4th ...	2,000	ditto ...	0 2 0	.....	.....	941
„ 23rd	93	8vo ...	4th ...	3,000	ditto ...	0 1 6	.....	.....	942
„ 1st	97	12mo ...	2nd ...	1,000	ditto ...	0 3 0	Foreign Mission Committee of the Church of Scotland, Edinburgh.	.....	943
April, 25th	1 sheet:	4' 9" × 3' 6"	1st ...	200	ditto ...	5 0 0	Debendra Náth Dhar, 40, Báránasi Ghosh's Street, Calcutta.	.....	944
Mar., 15th	105	8vo dy	1st ...	2,000	ditto ...	0 10 0	.....	A key	945
April, 26th	117	8vo dy ...	1st ...	1,000	ditto ...	0 7 0	.....	Moral lessons in pure and idiomatic Hindi.	946
May, 11th	184	8vo rl ...	6th ...	2,000	ditto ...	0 8 0	Saheb Prasad Sinha, Khargabilas Press, Bankipore.	.....	947

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						HINDI
	LAW.					
948	Tarjume Kayedá Bord Mul Alik Tamil Ehkamad Sage Kalaktari. Translation of Board's Rules as to the Service of Processes from the Collectorate.	Hindi ...	Amjad Hussain Shaha.	Law ...	Lithographed and published at Arrah.	Lithographed and published by Zuhur-ul-Huq.
	MISCELLANEOUS.					
949	Fagua Chautál. Songs for the *Holi* Festival in which *fagua* or red powder is used.	ditto ...	Dhaneswar Pande.	Miscellaneous	Printed at 51, Cross Street, and published at 10, Banstala Street, Calcutta.	Printed by Sadánanda Misra, and published by Bhagawat Misra and Dhaneswar Pande.
950	Hanumán Jyotish. An Astrological Work attributed to Hanumán.	ditto ...	Srínáth Láhá	ditto ...	Printed and published at 99, Ahiritola Street, Calcutta.	Printed and published by Nritya Lál Sil.
951	Holi Ká Khyál. The Songs Relating to the *Holi* Festival.	ditto ...	Brajabilás Das	ditto ..	ditto ditto ...	ditto ditto ...
952	Pávas Pramod. The Pleasures of the Rainy Season.	ditto ...	Dámodarprasád	ditto ...	Printed at 105, Cross Street, Calcutta, and published at Bhagulpore.	Printed by Bechulál Gupta, and published by the Author.
953	Khyál Kájíki Betí Mulako. The Songs about Mulá, the daughter of the Kází.	ditto ...	Sankar Das ...	ditto ...	Printed at 105, Cotton Street, and published at 63, Sutapatti, Calcutta.	Printed by Bechulál Gupta, and published by Surajballi Pande.
954	Harish Chandra Kalá. The Complete Works of Harish Chandra. Vol. IV. Part II.	ditto ...	Edited by Ramdin Sinha.	ditto ...	Printed and published at the Khargabilás Press, Bankipore.	Printed and published by Shahebprasad Sinha.
955	Ditto ditto. Vol. IV. Part III.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
956	Ditto ditto Vol. IV. Part IV.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
957	Ditto ditto. Vol. IV. Part V.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
958	Ditto ditto. Vol. V. Part I.	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
	The following work is designed for educational purposes.					
959	Mahájani. Mercantile Accounts.	ditto ...	Umanáth Misra	ditto ..	ditto ditto ...	ditto ditto ...
	RELIGION.					
960	Gopichánd Bharthari. The Stories of Gopichand and Bharthari.	ditto ...	Gajaráj Sinha	Religion, H.	Printed and published at 99, Ahiritola Street, Calcutta.	Printed and published by Nrityalál Sil.
961	Suryya Purán. A Purán in honour of the Sun.	ditto ...	Tulsi Dás ...	ditto ...	ditto ditto ..	ditto ditto ...
962	Srírám, Bharat Srí-krishna O Rádhámádhabji ki Báramási. The condition of Ram, Bharat, Krishna and Rádhámádhab during the twelve months of the year.	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...

Quarter ending 30th June 1889—continued.

8	9	10	11	12	13	14	15	16	17
Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 11th	24	6¼ × 5	1st ...	50	Lithographed.	.....	.....	The title explains the object of the work.	948
Mar., 3rd	72	12mo dy	1st ...	1,000	Printed	0 8 0	Bhagawat Misra, 10, Banstala Street, Calcutta.	.....	949
„ 8th	112	16mo ...	2nd ...	2,000	ditto ...	0 2 0	.....	Fortune-telling by means of diagrams, of the cawing of crows, and of the throbbings of different parts of the body.	950
May, 18th	20	12mo ...	1st ...	2,000	ditto ...	0 1 0	.....	*Khyal* songs for the *holi* festival	951
Mar., 19th	36	12mo ..	1st ...	1,000	ditto ...	0 4 0	Keshabánand ...	Describes the mental condition of ladies during the rainy season.	952
„ 18th	48	12mo dy	1st ...	1,000	ditto ...	0 8 0	Surajballi Pande	Songs relating to the love of a Prince for Mulá, the daughter of a Kázi. The Prince fell in love with her in a dream.	953
„ 12th	68	8vo rl ...	1st ...	200	ditto ...	1 0 0	Ramdin Sinha, Khargabilas Press, Bankipore.	This contains the text and translation of *Tudíya Sarvasva*, a work on the nature of devotion to God, attributed to Nárada. It contains 84 aphorisms, and is in the form of an *Upanishat*. It refutes the theories of Vyása, Garga and Sándilya on the subject, and considers the devotion of the milkmaids of Brindaban to be the true form of devotion.	954
„ 13th	87	8vo rl ...	1st ...	200	ditto ...	1 0 0	ditto ...	The text and translation of the one hundred aphorisms of Sándilya on the nature of devotion to God; the *Sarbottama stotra*; the second-half of the work entitled *Bhaktamálá*; the *Utsabábali*, or the number of festivals observed by the Hindus, and a discourse on Vaishnabism in India.	955
„ 14th	64	8vo ...	1st ...	200	ditto ...	1 0 0	ditto ...	Contains an introduction to the Puránas, in which the number, the chapters the slokas and the contents of the various Puranas are discussed.	956
May, 14th	98	8vo ...	1st ...	200	ditto ...	1 0 0	ditto ..	Of the various months in the year and the religious ceremonies to be performed in each.	957
„ 16th	108	8vo rl	1st ...	200	ditto ...	1 0 0	ditto ...	Collections of songs on a variety of subjects.	958
Mar, 19th	66	12mo dy	1st ...	1,000	ditto ...	0 2 0	Umanath Misra, Shámkura, Patna.	For the use of students of the schools and páthshalas of Behar.	959
„ 11th	37	12mo ...	4th ..	2,000	ditto ...	0 2 0	.....	Often noticed	960
„ 21st	21	12mo ...	6th ...	3,000	ditto ...	0 1 0	.....	ditto ...	961
„ 19th	11	12mo ...	1st ...	2,000	ditto ...	0 0 6	.....	The title explains the object of the work.	962

	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						HINDI
	RELIGION—*concld.*					
963	Khaira Shahaki Báramási. The condition of Khaira Sháh during the twelve months of the year.	Hindi ..	.....	Religion. H.	Printed at 99, Ahiritola Street, Calcutta	Printed and published by Nrityalál Sil.
964	Benimádhab, Jugal Kishor, Kausalyá, Gopi Vallabdebki Báramási The condition of Benimádhab, &c., during the twelve months of the year.	ditto ...	.....	ditto ..	ditto ditto ...	ditto ditto ...
965	Bharatharí Charitra The Career of Bharathari or Bhartrihari.	ditto ..	Kashi Náth ...	ditto ...	ditto ditto ...	ditto ditto ...
966	Rukmini Mangal. The Auspicious Rukmini.	ditto ...	Bhagabati Pandit.	ditto ...	ditto ditto ...	ditto ditto ...
967	Hanumán Bijaya. Victory to Hanumán.	ditto ...	.....	ditto ..	ditto ditto ...	ditto ditto ...
968	Dána Lílá. The Ferry Sport.	ditto ..	Girijánanda ...	ditto ...	ditto ditto ..	ditto ditto ...
969	Prema Ságara. The Ocean of Love (R)	ditto ...	Lallu Lál ...	ditto ...	ditto ditto ...	ditto ditto ...
970	Jagannath Máhátmya. The Sacredness of Jagannáth.	ditto ...	Paramánanda Sharmá.	ditto ...	Printed at 51, Cross Street, and published at 10, Rup Chand Raya's Street. Calcutta.	Printed by Sadánanda Misra, and published by Beni Mádhab Prasád.
971	Krishna Masti Prárambha. Salutation to Krishna.	ditto ...	Keshabánanda	ditto ..	Printed and published at 105, Cotton Street, Calcutta.	Printed and published by Bechulál Gupta.
972	Jnánávali. A Jaina Religious work.	ditto ...	Compiled by Raya Sítab Chand Nahar.	ditto Jaina.	Printed and published at Azimganj.	Printed and published by Shyamlál Chakrabarti.
	SCIENCE (MATHEMATICAL).					
	The following works are designed for educational purposes.					
973	Ganita Guru. Tables of Native Arithmetic. Part I.	Hindi ...	Bireswar Chakrabarti.	Science (Mathematical).	Printed and published at 8, Dixon's Lane, Calcutta.	Printed and published by B. L. Chakrabarti.
974	Deshi Hisháb. Native Arithmetic, Part III.	ditto ...	Umanath Misra.	ditto ...	Printed and published at the Khargabilás Press. Bankipore.	Printed and published by Shahebprasád Sinha.
975	Ditto. Ditto. Part IV.	ditto ...	Ditto ...	ditto ..	Ditto ditto ...	Ditto ditto ...
	FICTION.					MUSALMANI.
609	Khaibarer Janganámá. The Battle of Khyber.	Musalmani Bengali	Dost Muhammad Chaudhuri.	Fiction ...	Printed and published at 155, Musjidbari Street. Calcutta.	Printed and published by Mafizuddin Ahmmad.
610	Paribanu Sháhájádi. Paribanu. The Emperor's Daughter.	ditto ...	Ayuzuddin Ahmmad	ditto ...	ditto ditto ..	ditto ditto ...
611	Sahide Kárbálá. The Martyr of Kárbálá.	ditto ...	Jonab A ..	ditto ..	ditto ditto ..	ditto ditto ...
612	Jange Sohráb. The War of Sohráb.	ditto ...	Munshi Muhammad Khater.	ditto ..	Printed at 68, Nimu Gosain's Lane, and published at 155, Musjidbari Street, Calcutta.	Printed by Debendra Nath Chatterji, and published by Mafizuddin Ahammad.
613	Del Afroj. The Enlightener of the Heart.	ditto ...	Molla Muhammad Danesh.	ditto ..	Printed and published at, 75, Nimu Gosain's Lane Calcutta.	Printed and published by Muhammad Khater.
614	Gule Harmuz. Of Gul and Harmuz.	ditto ...	Muhammad Khater.	ditto ..	ditto ditto ...	ditto ditto ...
615	Laili Majnu. Of Laili and Majnu.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...

Quarter ending 30th June 1889—continued.

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Date of issue from the press or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright or any portion of it.	Remarks.	Number
BOOKS—concluded.									
1889.	Pages.					Rs. A. P.			
Mar. 15th	11	12mo ...	3rd ...	2,000	Printed	0 0 6	.....	.....	963
„ 20th	11	12mo ...	1st ...	2,000	ditto ...	0 0 6	.....	.....	964
„ 21st	13	12mo ...	4th ...	3,000	ditto ...	0 0 6	.....	Noticed	965
„ 9th	21	12mo ...	2nd ...	2,000	ditto ..	0 1 0	.. ...	ditto	966
„ 13th	11	12mo ...	1st ...	2,000	ditto ...	0 0 6	.....	.....	967
„ 18th	11	12mo ...	8th ...	2,000	ditto ...	0 0 6	.. ...	.....	968
„ 23rd	316	vo ...	10th...	3,000	ditto ..	0 5 0	.....	.....	969
„ 1st	48	8vo dy.	1st ...	2,000	ditto ...	0 5 0	Beni Mádhab Prasad, 10, Rup Chand Raya's Street, Calcutta	.....	970
„ 9th	8	16mo ...	1st ...	500	ditto ...	0 2 0	Keshabánand ...	.....	971
May 11th	208	vo ...	2nd ...	1,000	ditto ...	1 4 0	.....	A collection of short poems on Jaina religious subjects in an old form of the Hindi language.	972
						Rs. A. P.			
Mar. 29th	41	8vo ...	2nd ...	5,000	Printed	0 1 6	Bireswar Chakrabarti, Ránchi.	.....	973
April 25th	74	8vo dy.	1st ..	1,000	ditto ...	0 3 0	Umánáth Misra, Sham Kura, Patna.	.....	974
Mar. 17th	96	8vo dy.	1st ..	1,000	ditto ...	0 2 6	ditto ...	.....	975
BENGALI BOOKS.									
May 4th	236	8vo rl. ...	2nd ...	1,000	Printed	2 4 0	Dost Muhammad, Purasa, Dinajpore.	Khyber is a place in Arabia where Muhammad had a serious fight with the Jews. Through the exertions of Ali, Muhammad was successful in the fight. The present work is a historical romance based on the story of the victory of Ali at Khyber.	609
April 26th	138	8vo rl. ...	2nd ...	1,000	Printed	1 4 0	Mafizuddin Ahmmad, Calcutta.	A love story	610
„ 14th	411	8vo rl. ...	2nd ...	1,000	ditto ...	2 12 0	ditto ...	Based on the story of the martyrdom of Hosain at Kárbálá.	611
„ 19th	65	8vo rl. ..	new ...	1,000	ditto ...	0 8 0	Mafizuddin Ahmmad.	Based on the story of Rostam and his son Sohrab as given in Fardusi's *Shahnama*.	612
May 23rd	71	8vo rl. ...	Revised.	1,000	ditto ...	0 6 0	Maniruddin Ahmmad and Tafiluddin Ahmmad, Calcutta.	An adaptation of the first story of the Hitopadesha entitled *Mitralábh*.	613
„ 26th	202	8vo rl. ...	ditto	1,000	ditto ..	1 4 0	Muhammad Khater, Calcutta.	Often noticed	614
„ 27th	77	8vo rl. ...	ditto	1,000	ditto ...	1 2 0	ditto ...	ditto	615

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						MUSULMANI-BEN.
	FICTION—*concld.*					
616	Janga Namá. The Book of War.	Musalmani Bengali	Munshi Yakub	Fiction ..	Printed at 75, Nimu Gosain's Lane, and published at 19, Brindaban Basak's Lane, Calcutta.	Printed and published by Muhammad Khater.
617	Gul e Arjan. (A Name)	ditto ...	Rayhánuddin and Sadulla Sarkar.	ditto ...	Printed and published at 333, Upper Chitpore Road, Calcutta.	Printed by Binod Bihari Sil, and published by Kánáilál Sil and Brothers.
618	Cháhár Darbesh. The Four Darweshes.	ditto ...	Muhammud Danesh.	ditto ..	Printed and published at 90, Beadon Street, Calcutta.	Printed and published by Manirruddin Ahmmad.
619	Ján Churir Puthi. The Book about Heart-stealing.	ditto ...	Shaikh Mahabulla.	ditto ...	Printed and published at Kumarkhali.	Printed by Satish Chandra Mazumdar, and published by Nasiruddin Kári.
	MISCELLANEOUS					
620	Sher Ali. (A Name) ...	ditto ...	Shaha Sher Ali	Miscellaneous.	Printed at 90, Beadon Street, and published at 105, Chitpore Road, Calcutta.	Printed and published by Maniruddin Ahmmad.
621	Ditto ditto ...	ditto ...	ditto ..	ditto ...	Printed and published at 75, Nimu Gosain's Lane, Calcutta.	Printed and published by Muhammad Khater.
622	Sayat Námá. Of auspicious and inauspicious times.	ditto ...	Golam Farid...	ditto ...	ditto ditto ...	ditto ditto ....
623	Solemani Talenama. Solomon's Book on Fortune-telling.	ditto ..	ditto ..	ditto ..	ditto ditto ...	ditto ditto ...
	RELIGION.					
624	Del Raoshan. The Light of the Heart.	Musalmani-Bengai	Garibulla Shaheb.	Religion, M.	Printed and published at 155, Masjid Bari Street, Calcutta.	Printed and published by Mafizuddin Ahmmad.
625	Jaorakal Iman. The Boat of Faith.	ditto ...	Munshi Ashgar Hasan.	ditto ...	Printed at 90, Beadon Street, and published at 105, Chitpore Road, Calcutta	Printed and published by Maniruddin Ahmmad.
626	Serajal Kalam. The Lamp of Doctrines.	ditto ...	Munshi Ashruf Ali.	ditto ...	Printed and published at Andar Killa, Chittagong.	Printed by Jagat Chandra Das, and published by Ashraf Ali.
627	Nari Benamáz námá. Of the woman who does not say her prayers.	ditto ...	Bax Ali Khondkar.	ditto ...	Printed and published at the Amar Press, Comilla.	Printed and published by Nilámbar Datta.
628	Dhoká Bhanjan. The Removal of Doubts.	ditto ...	Naimuddin ...	ditto ...	Printed and published at the Mahmudia Press, Karatia.	Printed and published by Atahar Ali.
629	Ahakámal Muslemin. Good and Bad Deeds according to Musalman Doctrines.	ditto ...	Munshi Mal Muhammad.	ditto ...	Printed and published at the Dacca Azizia Press.	Printed and published by Basanta Kumár De.
630	Nasihatal Gafelin. Awakening the negligent.	ditto ...	Munshi Sadak Ali Ahmmad.	ditto ...	Printed and published at the Mahmudia Press, Karatia.	Printed and published by Atahar Ali.
631	Ek Sha Tirish Faraz One hundred and thirty duties of Musalmans.	ditto ...	Bax Ali Khondkar.	ditto ...	Printed and published at the Amar Press, Comilla.	Printed and published by Nilámbar Datta.
632	Meyáráj Námá. The Book of the Heavenward Journey.	ditto ...	Munshi Muhammed Khater.	ditto ...	Printed at 75, Nimu Gosain's Lane, and published at 116, Chitpore Road, Calcutta.	Printed by Muhammad Khater, and published by Mafizuddin Ahmmad.

uarter ending 30th June 1889—continued.

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ALI BOOKS—concluded.									
1889.	Pages.					Rs. A. P.			
une, 2nd	158	8vo rl ...	Revised.	1,000	Printed	1 4 0	Muhammad Khater.	Often noticed.	616
pril 12th	120	8vo rl ...	ditto	2,000	ditto ...	0 5 0	Kánáilál Sil and Brothers.	Ditto.	617
fay 12th	172	8vo rl ...	ditto	1,000	ditto ...	1 6 0	Maniruddin Ahmmad, Calcutta.	Ditto.	618
pril 1st	32	.....	1st	1,000	ditto ...	0 2 6	Shaikh Mahabulla Bakali, Julpiguri.	Madar was a saint, a great worshipper of Allah, and had many wonderful powers, one of them being that of concealing his own vital principle. At his death Azrail, the Angel, came to carry away his vital principle, but could not find it till after some search. Madar himself pointed out where he had concealed it.	619
May 8th	76	8vo rl ...	Revised	1,000	ditto ..	0 11 0	Maniruddin Ahmmad.	.....	620
„ 16th	76	8vo rl ...	ditto	1,000	ditto ...	0 6 0	Muhammad Khater, Calcutta.	Short pieces on a variety of subjects by Shah Sher Ali.	621
„ 19th	58	3vo rl ...	ditto	1,000	ditto ...	0 6 0	Muhammad Khater, Calcutta.	The title explains the object of the work.	624
„ 21st	54	8vo rl ...	ditto	1,000	ditto ...	0 10 0	Ditto ditto ...	Often noticed.	623
April, 23rd	79	8vo rl ...	3rd ...	1,000	Printed	1 2 0	Mafizuddin Ahmmad.	Directions for the performance of the religious ceremonies of the Musalmans.	624
May, 7th	175	8vo rl ...	Revised.	1,000	ditto ...	1 0 0	Maniruddin, Ahmmad, Calcutta.	The consequences of meritorious acts in this world and in the next, as given in the Koran and in the *Hadis*.	625
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April, 25th	17	8vo ..	2nd ...	1,000	ditto ...	0 2 0	.....	A woman who does not say her Namaz is not counted a good Musalmani.	627
„ 15th	12	12mo dy	1st ...	1,000	ditto ...	0 0 3	Naimuddin, Karatia.	In reply to a Wahabi work finding fault with certain doctrines of the Hanifi school of Sunnis.	628
Mar, 25th	92	8vo ..	8th ...	1,000	ditto ...	0 6 0	.....	The title explains the object of the work.	629
May, 13th	12	8vo ...	...	1,000	ditto ...	0 1 0	Munshi Sadak Ali Ahmmad.	.....	630
April, 12th	10	8vo ...	1st ...	2,000	ditto ..	0 0 6	.. ...	The title explains the object of the work.	631
May, 28th	28	8vo rl ..	Revised.	1,000	ditto ...	0 4 0	Mafizuddin Ahmmad, Calcutta.	Muhammad's journey to heaven, based on the Koran and the *Hadis*.	632

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						NEPALESE
	RELIGION.					
16	Galátiharu Lái Páwal Prerit ko Patra. The Epistles of Saint Paul to the Galatians. (T.)	Nepalese	Translated by Rev. A. Turnbull.	Religion C.	Printed and published at Lochnagar, Darjeeling.	Printed and published by N. L. Ráya.
						PERSIAN
	LANGUAGE.					
	The following works are designed for educational purposes.					
87	Gulzare Maktab. The school garden.	Persian	Hedayet Ali ...	Language	Lithographed and published at Arrah.	Lithographed by Muhammad Idris and published by Hedayet Ali.
88	Parsí Guzar. The Persian Instructor, Part I	ditto ...	Muhammad Nabi Hasan.	ditto ...	ditto ditto ...	Lithographed by Muhammad Zuhurul Huq and published by Muhammad Nabi Hasan.
						SANSKRIT
	DRAMA.					
951	Uttara Ráma Charita. The latter part of Rama's career. (R.)	Sanskrit.	Edited by Jibánanda Bidyáságara.	Drama ...	Printed at 56, Amherst Street. and published at 2, Ramanath Mazumdar's Lane, Calcutta.	Printed by Kshetra Mohan Mukharji and published by Jibánanda Bidyáságar.
	LANGUAGE.					
952	Shabda Kalpa Druma. The tree of words that fulfils all desires. Nos. 20 and 21 (together).	ditto ...	Sir Raja Rádhákánta Deb.	Language	Printed and published at 71, Pathuriaghata Street, Calcutta.	Printed by Kalipraskanna Basu, and published by Baradá Charan Basu and Haricharan Basu.
953	Ditto ditto. Nos. 22 and 23 (together)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
954	Kalápa Vyákaranam. A Sanskrit Grammar (R).	ditto ...	.....	ditto ...	Printed and published at the Dacca Syamantaka Press.	Printed by Gopinath Basak, and published by Kunjabihari Banik.
	The following work is designed for educational purposes.					
955	Sanskrita pátha. A Sanskrit Reader. Part I.	ditto ...	Harish Chandra Kabiratna.	ditto ...	Printed and published at 24, Girish Bidyáratna's Lane, Calcutta.	Printed by Shashi Bhushan Bhattácháryya, and published by the Author.
	LAW.					
956	Bibliotheca Indica. New Series. No. 705. Madan Párijáta. A work on Hindu Law. Fasc. V. (R.)	ditto ...	Edited by Madhu Sudan Smritiratna.	Law ..	Printed at 24, Girish Bidyaratna's Lane, and published at 57, Park Street, Calcutta.	Printed by Shashi Bhushan Bhattácháryya, and published by the Asiatic Society.
	MEDICINE.					
957	Satíka Chakradatta. The Medical work of Chakrapáni Datta, with a commentary. (R.)	Sanskrit	Edited by Hridaya Náth Tarkaratna.	Medicine, N.	Printed and published at 5, Nimtalá Ghát Street, Calcutta.	Printed and published by Bhuban Chandra Basák.
958	Bangasena Grantha. The Medical Work of Bangasena. (R.)	ditto ...	Bangasena ...	ditto ...	Printed at 75, Cotton Street, Calcutta, and published at Shahar Beri, district Rohtak.	Printed by Biswanáth Brahmachári, and published by Nanda Kumár Goswami.
	to have been lost. Nanda Kumar Goswami, a native physician of Beri in Rohtak in the Punjab, has after *Vaidyas* in India. He had very imperfect materials for his edition, and he was compelled therefore to Agasti Samhita. Bangasena recast it in its present form and gave it his own name. It contains many useful					
959	Sushruta. A system of medicine. (R.)	ditto ...	.....	ditto ...	Printed at 56, Amherst Street, and published at 2, Ramá Nath Mazumdar's Lane, Calcutta.	Printed by Kshetramohan Mukharji, and published by Jibánanda Vidyáságar.

Quarter ending 30th June 1889—continued.

8	9	10	11	12	13	14	15	16	17
Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOK.									
1889.	Pages.					Rs. A. P.			
Mar., 15th	20	8vo ...	1st ...	1,000	Printed	0 1 0	Foreign Mission Committee of the Church of Scotland, Edinburgh.	.....	16
BOOKS.									
April, 7th	18	10×6½	1st ...	500	Lithographed.	0 1 6	.....	An alphabetical primer	87
Mar., 29th	18	9×5¾	1st ...	1,000	ditto ...	0 1 0	.....	A Persian Grammar	88
BOOKS.									
April, 1st	268	8vo dy...	2nd ...	1,000	Printed	1 0 0	Jibánanda Bidyáságara, 2, Ramanath Mazumdar's Lane, Calcutta.	.....	951
Apr., 12th	64	4to rl ...	New	2,000	ditto ...	2 0 0	Baradá Charan Basu and Hari Charan Basu, 71, Pathuriaghata Street, Calcutta.	From *Tithikshaya* to *Dadhi Mandoda.*	952
May, 8th	64	4to rl ...	do. ...	2,000	ditto ..	2 0 0	ditto ...	From *Dadhimukha* to *Devara* ...	953
Mar., 22nd	72	12mo ...	2nd ...	3,000	ditto ...	0 8 0	.....	The chapter on declensions ...	954
Mar., 6th	60	12mo dy	11th...	2,000	ditto ...	0 4 0	Harish Chandra Kabiratna, 24, Girish Bidyaratna's Lane, Calcutta.	.....	955
April, 22nd	96	8vo dy...	1st ...	500	ditto ...	0 6 0	Asiatic Society, 57, Park Street, Calcutta.	The 5th and 6th chapters ...	956
May, 26th	169	8vo dy...	1st ...	500	ditto ...	0 8 0	.....	.....	957
April, 18th	1127	12mo rl	1st ...	500	ditto ...	12 0 0	Nanda Kumar Goswami, Shahar Beri, Rohtak.	Bangasena is quoted by all medical treatises current in Bengal. But the complete work of Bangasena was considered great search succeeded in completing the work by obtaining different chapters from different families of distinguished make his own emendations. Bangasena himself was the son of Gadádhar of Kántiká. The work was known as chapters on the water we drink, the locality we inhabit, &c.	958
„ 1st	927	8vo dy	3rd ...	1,000	ditto ...	4 0 0	Jibánanda Vidyáságara, 2, Ramá Náth Mazumdar's Lane, Calcutta.	.....	959

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						SANSKRIT
	MEDICINE—*concld.*					
960	Sushruta Samhitá. The medical work by Sushruta. No. 22. (R)	Sanskrit	Edited by Abinash Chandra Kabiratna.	Medicine, N.	Printed at 5, Simia Street, and published at 200, Cornwallis Street, Calcutta.	Printed by Gopalchandra Ghoshal, and published by the Editor.
	MISCELLANEOUS.					
961	Vidagdha Mukhamandanam. The Ornament of the mouth of the Witty People. (R.)	ditto ...	Edited by Basanta Kumár Kabirája.	Miscellaneous.	Printed and published at 21, Sitárám Ghosh's Street, Calcutta.	Printed and published by Shashibhushan Datta.
	POETRY.					
962	Níti Kusuman. The Flower of Morals.	ditto ...	Kalipada Mukharji.	Poetry ...	Printed and published at 23, Jugal Kishor Dás' Lane, Calcutta.	Printed and published by Udaya Charán Pal.
	RELIGION.					
963	Bhagabadgitá. Verses spoken by Krishna (R).	ditto ...	.....	Religion, H.	Printed and published at 55, Chitpore Road, Calcutta.	Printed and published by Kálidas Chakrabarti.
964	Brihat Nitya Karma Paddhati. A Large Recension of the work on the Process of Performing Daily Religious Ceremonies. (R.)	ditto ...	.....	ditto ...	Printed at 54, Balarám De's Street, and published at 98-3, Chitpore Road, Calcutta.	Printed by Rakhal Chandra Das, and published by Ram Kánái Das.
965	Nitya Karma Paddhati. The Process of Performing Daily Religious Duties.	ditto ...	.....	ditto ...	Printed at 2, Tarak Chatterji's Lane, and published at 115, Chitpore Road, Calcutta.	Printed and published by Umesh Chandra Bhattácháryya.
966	Mahábháratam. The Mahábharata, No. 41. (R).	ditto ...	....	ditto ...	Printed and published at 1, Rájá Gurudas's Lane, Calcutta.	Printed and published by Pratáp Chandra Raya.
967	Ditto ditto. No. 42. (R.)	ditto ..	.....	ditto ...	ditto ditto ...	ditto ditto ...
968	Champu Ramayana. The Ramayana in Prose and Verse. (R).	ditto ..	Bhoja Rájá ...	ditto ...	Printed at 56, Amherst Street, and published at 2, Rama Nath Mazumdar's Lane, Calcutta.	Printed by Kshetra Mohan Mukharji, and published by Jibánanda Vidyáságara.
969	Rig Vedasya Sayanácháryaviráchitam Madhaviya Vedartha-Prakáshákhyam Bháshyan. The Commentary on the Rigveda entitled Vedártha prakásha by Sáyana, Year I, Parts 1 and 2 together. (R).	ditto ..	Edited by Prasanna Kumar Vidyáratna.	ditto ...	Printed and published at 41, Patuatola Lane, Calcutta.	Printed by Umesh Chandra Ghosh, and published by the editor.
970	Ditto ditto. Year I. Parts 3 and 4 together (R).	ditto ..	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
971	Ditto ditto. Year II, Part 5.	ditto ...	ditto ...	ditto ...	Printed at 5, Ramá Náth Ghosh's Lane, and published at 5, Sita Rám Ghosh's Street, Calcutta.	ditto ditto ...
972	Brihat Nitya Karma Paddhati. A Large Recension of the Work on the Process of Performing Daily Religious Ceremonies. (R)	ditto ...	Edited by Bipin Bihari Sil.	ditto ...	Printed at 333, and published at 113, Upper Chitpore Road, Calcutta.	Printed by Binod Bihari Sil, and published by Nader Chánd Sil.
973	Bibliotheca Indica. New Series. No. 710. The Varáha Purána Fasc. IX. (R.)	ditto ...	Edited by Pandit Hrishikesha Shástri	ditto ...	Printed at 24, Girish Vidyáratna's Lane, and published at 57, Park Street, Calcutta.	Printed by Shashibhushan Bhattácháryya, and published by the Asiatic Society.

Quarter ending 30th June 1889—continued.

8	9	10	11	12	13	14	15	16	17
Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April, 16th	80	8vo rl ...	1st ...	1,000	Printed	1 0 0	Abinásh Chandra Kabiratna, 200, Cornwallis Street, Calcutta.	.....	960
May, 14th	24	12mo dy	1st ..	1,000	ditto ...	0 4 0	Basanta Kumár Kabirája, 37, Fauzdari Balakhana, Calcutta.	A book of riddles in Sanskrit ...	961
April, 19th	32	8vo dy.	1st ...	500	ditto ...	0 8 0	Udayacharan Pal, 23, Jugal Kishor Das Lane, Calcutta.	A collection of short pieces containing good advice.	962
Mar., 23rd	151	32mo rl	1st ...	1,000	ditto ...	0 4 0	Kuladá Kinkar Ráya, 13, Rájá Naba Krishna's Street, Calcutta.	.....	963
May, 4th	36	12mo rl	Revised.	1,000	ditto ...	0 2 0	.....	.....	964
April, 27th	36	12mo rl	5th ...	1,000	ditto ...	0 2 0	Umesh Chandra Bhattácháryya, Calcutta.	.....	965
Mar., 16th	120	8vo dy	1st ...	4,000	ditto ...	.....	Pratáp Chandra Ráya.	Goes on with the *Anushásha-parba.*	966
„ 25th	120	8vo dy	1st ...	4,000	ditto ...	.....	ditto „	ditto ditto ...	967
April, 1st	370	8vo dy	2nd ...	1,000	.....	1 0 0	Jivánanda Vidy-a sagara, 2, Rama nath Mazumdar's Lane, Calcutta.	*Champu* is a poem in prose and verse, written in praise of any one distinguished individual. Here the Ramayana has been recast in the form of a *Champu* Kábya.	968
Mar., 26th	154	8vo dy	1st ...	500	ditto ...	2 8 0	Prasanna Kumár Vidyáratna 41, Patuatolah Lane, Calcutta.	The preface by Sáyana and the commentary on 16 hymns.	969
April, 1st	160	8vo dy	1st ...	500	ditto ...	2 8 0	ditto ...	This part ends with the commentary on the 51st hymn.	970
May, 1st	80	8vo dy	1st ...	500	ditto ...	2 8 0	ditto ...	Ends with the commentary on the 64th hymn.	971
April, 19th	34	12mo rl	8th ..	1,000	ditto ...	0 2 0	Bipin Bihari Sil, Calcutta.	.....	972
May, 25th	96	8vo dy.	1st ...	500	ditto ..	0 6 0	The Asiatic Society, 57, Park Street, Calcutta.	The greatness of Someswar and other places of pilgrimage, of Triveni and other places which are regarded as places of redemption, of the place where *Salgrám* stones are procurable, of Kurukshetra, of Hrishikesh, of Dwárká, of Mathura, &c.	973

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						SANSKRIT
	RELIGION—*concld.*					
974	Bibliotheca-Indica. New Series. No. 702. Chaturvarga Chintámani. Vol. III. Part II. Fasc. II. (R.)	Sanskrit	Edited by Pandit Jogeswara Smritiratna, and Pandit Kámákhyánáth Tarkavágisha.	Religion H.	Printed at the Baptist Mission Press, and published at 57, Park Street, Calcutta.	Printed by G. H. Rouse, and published by the Asiatic Society.
975	Srirám Sahasranáma. The Thousand Names of Ráma. (R.)	ditto ...	.....	ditto ...	Printed and published at 99, Ahiritola Street, Calcutta.	Printed and published by Nrityalál Sil.
976	Ditto ditto ...	ditto ...	.....	ditto ...	ditto ditto ...	ditto ditto ...
977	Mukunda Muktábali O Chátu Pushpánjali. Pearls for Mukunda and a Handful of Flowers of Coaxing. (R.)	ditto ...	Bùp Goswami	ditto ...	ditto ditto ...	ditto ditto ...
978	Sri Gangá Lahari. Verses on the Sacredness of the Ganges. (R).	ditto ...	Gajràj Sinha ...	ditto ...	Printed and published at 99, Ahiritola Street, Calcutta.	Printed and published by Nritya Lál Sil.
979	Vishnu Sahasra Nâm. The Thousand Names of Vishnu. (R).	ditto ...	Bhágirathi Sathia.	ditto ...	Printed and published at the Cuttack Printing Company's Press.	Printed and published by the Cuttack Printing Company.
						URDU
	FICTION.					
261	Kissa Hiraman Totá. The Story of a Parrot of the Hiraman Species.	Urdu ...	Enaet Ali Beg	Fiction ...	Lithographed and published at Arrah.	Lithographed by Zuhurul Huq, and published by Muhammad Abdus Sattar.
	to enter the dead body of an antelope and himself entered the lifeless body left by the King and ordered all he told the secret. The Queen then induced the pseudo-King to enter into the body of a dead cock, and the real					
	LAW.					
262	Majumia Zabete Dowani. The Civil Procedure Code. (T.)	ditto ...	Mehdi Hasan	Law ...	ditto ditto ...	Lithographed and published by Zuhurul Huq.
	RELIGION.					
863	Nuran-ala Nur. Light and more Light.	ditto ...	Shah Golam Najaf.	Religion, M.	Lithographed and published at the Union Press, Bankipore.	Lithographed and published by Sayyid Rahmiuddin.
264	Sadatud Darain. Fi Etáátil Waledain. Obedience to Parents leads to fortune in this world and in the next.	ditto ...	Ilahi Bux ...	ditto ...	Lithographed at Arrah, and published at Patna.	Lithographed by Zuhurul Huq, and published by Hazi Sayad Jan.
						URIYA
	ART.					
	The following works are designed for educational purposes.					
631	Uriyá Copy Book. No. 1	Uriya ...	J. Elliot ...	Art ...	Printed and published at the Orissa Mission Press, Cuttack.	Printed and published by J. F. Hill.
632	Ditto ditto. No. 3	ditto ...	ditto ...	do. ...	ditto ditto ...	ditto ditto ...
	FICTION.					
633	Padmámati (A Name) ...	ditto ...	Umesh Chandra Sarkar.	Fiction ...	Printed and published at the Cuttack Printing Company's Press.	Printed and published by the Cuttack Printing Company.
	on real facts. Durjodhan Das, an influential officer of the Rájá of Nilgiri, wanted to force Padmámati, the his inhuman treatment of Padmámati and her family reached the ears of Mr. Ricketts, the Magistrate, who					

Quarter ending 30th June 1889—continued.

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BOOKS—concluded.									
1889.	Pages.					Rs. A. P.			
Mar., 16th	96	8vo dy.	1st ...	500	Printed	.. ...	Asiatic Society, 57, Park Street, Calcutta.	Determination of the time of the annual and other periodical ceremonies.	974
„ 25th	13	12mo ..	3rd ...	1,000	ditto ..	0 0 6	... ..	The title explains the object of the work.	975
„ 28th	11	12mo ...	2nd ..	1,000	ditto ..	0 1 0	.....	This is in the Bengali character	976
„ 26th	8	12mo ...	2nd ..	2,000	ditto ..	0 1 0	.....	Two works by Rúp Gosvami, one of the immediate disciples of Chaitanya.	977
„ 15th	13	12mo ...	2nd ...	2,000	ditto ..	0 0 6	.....	.....	978
May, 4th	14	12mo dy	5th ...	1,000	ditto ..	0 1 3	Bhagirath Satthia.	.. ..	979
BOOKS.									
Mar., 16th	24	10 × 6½	1st ..	1,500	Litho-graphed.	0 1 6	.....	A story of *Kdyápalat*, or changing the person. A King knew the secret of changing his person, and taught it to his minister, who induced the King antelopes to be killed. Then the King entered the person of a Hiraman parrot and came to the Queen, to whom King got an opportunity of re-entering his own person.	261
April, 1st	204	10 × 6½	2nd ..	500	ditto ...	1 0 0	.....	Act XIV of 1882 ...	262
Mar., 23rd	56	8vo ...	1st ...	500	ditto ...	0 7 0	Shah Golam Najaf, Bankipore.	Suggestion of certain explanations of some of the most obscure expressions and passages in the Bible.	263
April, 10th	48	10 × 6½	1st ...	1,000	ditto ...	0 4 0	.....	The title explains the object of the work.	264
BOOKS.									
May, 18th	28	Double foolscap.	3rd ...	2,000	ditto ...	0 2 0	Orissa Mission Press.	.....	631
„ 16th	31	ditto ...	5th ...	2,000	ditto ...	0 2 0	ditto ...	.....	632
Mar., 22nd	122	12mo dy	1st ...	1,000	ditto ...	0 8 0	Umesh Chandra Sarkar.	The writer thinks that this is the first original work of fiction in Uriya. The story is based daughter of Jagu Patwari, to marry him. He was a wicked man and fond of oppressing the raiyats. The story of instituted a prosecution against him and got him severely punished for his offence.	633

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						URIYA
	HISTORY (INCLUDING GEOGRAPHY).					
	The following works are designed for educational purposes.					
634	Sankshipta Bhárat Itihás. A Short History of India.	Uriya ...	Ram Chandra Birbar, and Hari Chandan Mahíndra Bahadur,	History (including geography).	Printed and published at the Orissa Mission Press.	Printed and published by J. F. Hill.
635	Práimeri Bhugol. Primary Geography.	ditto ...	Trilochan Mishra.	ditto ...	ditto ditto ..	ditto ditto ...
	LANGUAGE.					
	The following works are designed for educational purposes.					
636	Barna Bodhak. An Alphabetical Primer. Parts I and II (together.)	ditto ...	Gobinda Rath	Language	Printed and published at the Printing Company's Press, Cuttack.	Printed and published by the Cuttack Printing Company.
637	Chaturtha Páth. The Fourth Number Reader.	ditto ..	Sitanath Ráya	ditto ..	ditto ditto ...	ditto ditto ...
638	Pratham Páth. Reader No. 1.	ditto ...	Jagannath Rao	ditto ...	Printed and published at the Mission Press, Cuttack.	Printed and published by J. F. Hill.
	MISCELLANEOUS.					
639	Sáhitya Sammilani Sabhár Samálochaná. A Review of the proceedings of the Literary Society entitled Sáhitya Sammilani Sabhá.	ditto ...	Dayánidhi Shástri.	Miscellaneous.	Printed and published at the Orissa Patriot Press.	Printed and published by Madanmohan Náyak.
	The following works are designed for educational purposes.					
640	Praimeri Jamidari Mahajani Hisáb. An Elementary work on Zemindari and Mahajani Accounts.	ditto ...	Jagannath Rao	ditto ...	Printed and published at the Orissa Mission Press, Cuttack.	Printed and published by J. F. Hill.
	POETRY.					
641	Prabhát Abakásh. Morning Leisure.	ditto ...	Bhagabat Prasad Dau.	Poetry ...	Printed and published at the Cuttack Printing Company's Press.	Printed and published by the Cuttack Printing Company.
642	Chaupadi Mála. A Collection of Vers s in the *Chaupadi* Metre.	ditto ..	Gobardhan Patnaik.	ditto ..	ditto ditto ..	ditto ditto ...
643	Balabodh Koili. The Cuckoo addressed on the subject of theEarly Sports of Krishna.	ditto ...	Agani Naik ...	ditto ...	Printed and published at the Victoria Press, Cuttack.	Printed and published by Abhin Nayak.
644	Navánurág. New Love	ditto ...	Gobinda Rath	litto ...	ditto ditto ...	ditto ditto ...
645	Berá Parikramá O Gundichá Bije. The Perambulation of the City of Puri and the Car Festival.	ditto ...	.....	litto ...	Printed and published at the Printing Company's Press, Balasore.	Printed by Gobinda Chandra Patnaik and published by Bhagawan Chandra Das.
646	Kálí Dalan. The Suppression of the Serpent-God Kali or Kálíya.	litto ...	Lakshman Nayak.	litto ..	Printed and published at the Orissa Patriot Press.	printed and published by Agani Náyak.

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BOOKS—continued.									
1889.	Pages.					Rs A P.			
April 24th	192	12mo dy	1st ...	1,000	Printed	0 8 0	Ram Chandra Birbar, &c., Talchera.	From ancient times down to the present day.	634
Mar. 21st	122	12mo dy	1st ...	2,000	ditto ...	0 5 0	Trilochan Mishra, Third Assistant High School, Sambalpur.	Designed for the use of the 3rd, 4th, and 5th classes of Uriya schools.	635
May 31st	44	D. F. 16	9th ...	10,000	ditto ...	0 1 0	The Author ...	.....	636
June 6th	7	12mo dy.	1st ...	1,000	ditto ...	0 6 0	ditto ...	Moral lessons ...	637
April 24th	38	12mo dy.	4th ...	2,000	ditto ...	0 1 0	ditto ..	An illustrated alphabetical primer	638
„ 5th	9	8vo dy...	1st ...	50	ditto ...	.....	ditto ..	Contains a criticism of Bhásháḍarsha, a work on Uriya Grammar.	639
May 8th	25	12mo dy	2nd ..	1,000	ditto ...	0 1 6	ditto ...	.....	640
Mar. 13th	8	12mo dy	5th ...	2,000	ditto ...	0 1 0	ditto ...	Jashoda's exhortations to Krishna to leave his bed.	641
April 22nd	42	12mo dy	1st ..	1,000	ditto ..	0 3 0	ditto ...	The exploits of Krishna at Brindában.	642
Mar. 18th	9	16mo fcap	1st ..	1,000	ditto ..	0 0 6	.....	Jashodá addresses her favourite cuckoo on the subject of the early sports of Krishna, after his departure for Mathurá.	643
June 6th	18	16mo dy	1st ...	1,000	ditto ..	0 1 0	.....	The sports of Krishna and Rádhá.	644
Jan. 25th	14	8vo ...	1st ...	500	ditto ...	0 0 9	.....	.....	645
.....	...	...	...	...	ditto ...	0 1 0	.....	The title explains the object of the work.	646

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						URIYA
	RELIGION.					
647	Mahábhárata Banaparba. The Third Book of the Mahábhárata. (T.)	Uriya ..	Fakir Mohan Senápati.	Religion H.	Printed and published at the Balasore Printing Company's press.	Printed by Gobinda Chandra Patnaik, and published by Bhagaban Chandra Dás.
648	Puránprakáshiká. The Publication of Puranas, Part XIV. The Brahma Baibartta Mahápurán. The Puran describing the Evolution of the World from Brahma. (T.)	ditto ...	Rághunath Ghosh.	ditto ..	Printed and published at the Victoria Press, Cuttack.	Printed and published by Abhin Náyak.
	SCIENCE (MATHEMATICAL).					
	The following works are designed for educational purposes.					
649	Jyámitik Anushilani Samarthan. Solutions of Geometrical Deductions.	ditto ...	Chintámani Dás and others.	Science (Mathematical).	ditto ditto ...	ditto ditto ...
650	Ganit Prabesh. An Introduction to Mathematics.	ditto ...	Sitánath Ráya	ditto ...	ditto ditto ...	ditto ditto ...
651	Anka Prabesh. An Introduction to Mathematics.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
652	Utkal Ganitánka. An Uriya Arithmetic.	ditto ...	J. S. Ruto and C. Acharyya.	ditto ...	ditto ditto ..	ditto ditto ...
653	Sulabh Jyámati. Easy Geometry.	ditto ...	Madhusudan Rao and Sitanath Ráya.	ditto ...	Printed and published at the Orissa Mission Press.	Printed and published by J. F. Hill.
654	Anka Sútra. The Principles of Arithmetic.	ditto ...	.....	ditto ...	Printed and published at the Balasore Printing Company's Press.	Printed by Gobinda Chandra Patnayak, and published by Bhagban Chandra Dás.
	SCIENCE (NATURAL AND OTHER).					
	The following work is designed for educational purposes.					
655	Svástha Sádhan. The Way to Health.	ditto ...	Shyam Sundar Patnayak	ditto ...	Printed and published at the Orissa Mission Press.	Printed and published by J. F. Hill.
						I.—ARABIC AND MUSALMANI.
	RELIGION.					
13	Ahákámossalát. All about Namaz.	Arabic and Musalmani-Bengali	Muhammad Fayazuddin.	Religion M.	Printed and published at the Azizia Press, Dacca.	Printed and published by Basanta Kumar De.
						II.—ARABIC AND
15	Majmuia Adiyat. A Collection of Prayers.	Arabic and Urdu.	.....	ditto ...	Lithographed at Arrah, and published at Patna.	Lithographed by Zuhurul Huq, and published by Hazi Sayyad Jan.
						III.—BENGALI AND
	LANGUAGE.					
477	An enlarged English and Bengali Dictionary.	Bengali and English.	Purna Chandra Basu.	Language	Printed at 23 Jugol Kisor Dás' Lane, and published at 54-1, College Street, Calcutta.	Printed by Udaya Charan Pál, and published by the author.

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks	Number
BOOKS—concluded.									
1889.	Pages.					Rs. A. P.			
Mar. 6th	96	12mo ...	1st ...	1,000	Printed	0 10 0	.....	A new translation of the Mahábhárata.	647
„ 17th	24	8vo rl	1st ...	1,000	ditto ...	0 4 0	.....	A metrical translation of the Brahma Baibartta Purán from the original Sanskrit.	648
May 16th	56	12mo dy	1st ...	1,000	ditto ...	0 4 6	.....	.....	649
April 8th	98	16mo rl	1st ...	500	ditto ...	0 2 6	.....	.....	650
„ 8th	98	16mo rl	1st ...	500	ditto ...	0 2 6	.....	.....	651
„ 12th	108	12mo dy	1st ...	1,000	ditto ...	0 2 0	.....	.....	652
„ 12th	88	12mo ...	1st ...	1,000	ditto ...	0 6 0	Sitanath Ráya, Balasore.	.....	653
Mar. 4th	12	8vo ...	4th ...	500	ditto ...	0 0 9	.....	.....	654
Mar. 27th	78	12mo dy	1st ...	5,000	ditto ...	0 1 0	Shyám Sundar Patnayak, Cuttack.	.....	655
BENGALI BOOK.									
1889.	Page.								
Mar. 22nd	59	8vo ...	2nd ...	1,000	ditto ..	0 6 0	.....	.....	13
URDU BOOK.									
1889.	Page.								
April 10th	64	5×3	1st ...	1,000	Lithographed.	0 3 0	.....	.....	15
ENGLISH BOOKS.									
1889.									
April 20th	788	8vo rl ...	1st ...	2,000	Printed	2 0 0	Purna Chandra Basu, 54-1, College Street, Calcutta.	The distinguishing features of the present work are (1) that many illustrations have been given; (2) that many phrases and idioms have been explained; (3) that a list of abbreviations have been given with their explanations.	477

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						III.—BENGÁLI AND
	LANGUAGE—*contd.*					
478	Barat's Pronouncing Etymological and Pictorial Dictionary. Part LXXXII.	Bengali and English.	L. N. Mallik	Language	Printed and published at 92, Bowbazar Street, Calcutta.	Printed by Kisori Mohan Sen, and published by Trailokya Nath Barát.
479	Ditto ditto. Part LXXXIII.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
480	Ditto ditto. Part LXXXIV.	ditto ...	ditto ..	ditto ...	ditto ditto ..	ditto ditto ...
	The following works are designed for educational purposes.					
481	Inráji Shikshak. The English Teacher. Part I.	ditto ...	Jogindra Chandra Dás.	ditto ...	Printed at 23, Jugal Kisor Dás' Lane, Calcutta, and published at Bantra.	Printed by Udaya Charan Pál, and published by the author.
482	A Key to the Juvenile Reader.	ditto ...	.....	ditto ...	Printed and published at 92, Bowbazar Street, Calcutta.	Printed and published by Bámá Charan Majumdár.
483	A Modern Spelling Book	ditto ..	Golok Chandra Dás.	ditto ...	Printed at 46, Panchánantala Lane, Calcutta and published at Nágarpur, Mymensing.	Printed by Sanyal and Company, and published by K. C. Saha Pramanik.
484	Ditto ditto ...	ditto ...	ditto ..	ditto ...	ditto ditto ..	ditto ditto ..
485	The Mentorial Notes on the Middle Class Reader.	ditto ...	P. Ghosh ...	ditto ...	Printed at 46, Panchánantala Lane, and published at 1, College Street, Calcutta.	Printed by Sanyal and Company, and published by the Saraswati Library
486	The Beginner's English Grammar in Bengali ...	ditto ...	Mohini Mohan Basu.	ditto ...	Printed and published at 46, Panchánantala Lane, Calcutta.	Printed and published by Sanyal and Company.
487	A Series of Graduated Translation Exercises, Part I.	ditto ...	L. A. Stapley	ditto ...	Printed at 6, Simla Street, and published at 20, Cornwallis Street, Calcutta.	Printed by Premchand Shaha, and published by B. Banerji and Company.
488	A Key to Royal Reader. No. 4, Part I.	ditto ..	Kripanath Majumudar.	ditto ...	Printed at 23, Panchánantala Lane, Calcutta, and published at Darbhanga.	Printed by Rambrahma Kumar, and published by the Darbhanga Trading Company.
489	Elementary Lessons on English Composition.	ditto ...	Gangádhar Banerji.	ditto ...	Printed 63-3, Mechhua bazar Street, and published at 55, College Street, Calcutta.	Printed by Gopal Chandra Niyogi, and published by Jogesh Chandra Banerji.
490	Rajabhásha. The Queen's English.	ditto ...	Upendra Nath Mukharji.	ditto ...	Printed at 107, Bowbazar Street, and published at 3, Beadon Street, Calcutta.	Printed by Umácharan Chakrabartti, and published by Upendranath Mukharji.
491	Helps to Students ..	ditto ...	Ananda Mohan Datta.	ditto ...	Printed at 24, Beadon Street, and published at 64, College Street, Calcutta.	Printed by Mani Mohan Rakshit, and published by Mahesh Chandra Bhattácháryya.
492	An Elementary Practical Grammar of the English Language.	ditto ...	Ramánáth Sarasvati.	ditto ...	Printed and published at 24, Girish Bidyáratna's Lane, Calcutta.	Printed by Shashi Bhushan Bhattácháryya, and published by Hárish Chandra Kabiratna.
493	How to Translate Idiomatically from Bengali into English.	ditto ...	Dhanaballabh Set, M.A.	ditto ...	Printed at 108, Baranasi Ghosh's Street, and published at 64, College Street, Calcutta.	Printed by Nabin Chandra Pal, and published by Dás Gupta and Company.
494	An Exhaustive Note on the Bengali Entrance Course, 1890.	ditto ..	Purna Chandra Gupta.	ditto ...	Printed at 153, Cornwallis Street, and published at 13, Nebutala Lane, Calcutta.	Printed by Gopal Chandra Chakrabartti, and published by S. Biswás.
495	A Complete Key to Murray's Spelling Book.	ditto ...	Bihari Lál Ráya Chaudhuri.	ditto ...	Printed and published at 22-2, Jhámápukar Lane, Calcutta.	Printed and published by Baradá Prasád Majumdár.
496	A Complete Key to Poetical English Reader No. II.	ditto ...	Kailash Chandra Datta, M.A.	ditto ...	Printed at 22 2, Jhámápukur Lane, and published at 54-1, College Street, Calcutta.	ditto ditto ...

Quarter ending 30th June 1889—continued.

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ENGLISH BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
April 15th	32	4to dy...	1st ...	1,000	Printed	0 6 0	Trailokya Nath Barát, 12, Patáldanga Street, Calcutta.	English from *Soda* to *Sounding rod*; and Bengali from *Ruchaka* to *Rogya*.	478
„ 20th	32	4to dy...	1st ...	1,000	ditto ...	0 6 0	ditto ...	English from *Soundless* to *Spindle*, and Bengali from *Rochaka* to *Lanká*.	479
May 5th	32	4to dy ..	1st ...	1,000	ditto ...	0 6 0	ditto ...	English from *Spindle-legged* to *Spring time*, and Bengali from *Lanká* to *Lashuniya*.	480
April 10th	175	8vo dy...	1st ...	1,000	ditto ...	1 4 0	Chuni Lal Mukharji and Jogindra Chandra Dás.	.....	481
„ 30th	232	12mo ...	1st ...	1,000	ditto ...	0 10 0	Chárú Chandra Majumdar, Jamua.	.....	482
Mar. 17th	106	12mo dy	3rd ...	10,000	ditto ...	0 4 0	Kisor Chandra Saha Pramanik, Nagarpur, Mymensing.	.....	483
April 26th	106	12mo dy	4th ...	2,000	ditto ...	0 4 0	ditto ..	.....	
„ 19th	84	12mo dy	1st ...	1,000	ditto ..	0 4 0	Purna Chandra Ghosh, 1, College Street, Calcutta.	.....	484 485
„ 24th	53	16mo d fcap.	2nd ...	3,000	ditto ..	0 3 0	Mohini Mohan Basu, Bogra.	.....	486
„ 10th	41	8vo dy...	4th ...	2,000	ditto ..	0 6 0	Kali Krishna Banerji, 18, Duff Street, Calcutta.	.....	487
„ 8th	95	8vo dy...	2nd ...	1,000	ditto ...	0 10 0	Kripa Nath Majumdar, Darbhanga.	.....	488
„ 11th	116	16mo s. rl.	13th...	6,000	ditto ..	0 6 0	Gangádhar Banerji.	.....	489
„ 15th	106	12mo dy	1st ...	2,000	ditto ..	0 10 0	Aghornath Banerji, Bowbazar, Calcutta.	A guide to the art of writing and speaking English correctly.	490
„ 20th	176	12mo ...	10th...	1,100	ditto ...	0 10 0	.....	.....	491
April 23rd	72	12mo dy	New	1,000	ditto ...	0 5 0	Thákamani Dási, Gocháran, 24-Pergunnahs.	.....	492
May 2nd	118	12mo ...	2nd ...	1,000	ditto ...	0 8 0	Dhanaballabh Set, M.A., Balaram De's Street, Calcutta.	.....	493
„ 24th	116	12mo dy.	1st ..	500	ditto ...	0 14 0	Purna Chandra Gupta, 13, Nebutala Lane, Calcutta.	.....	494
Mar. 29th	38	12mo ...	6th ...	2,000	ditto ...	0 5 0	Baradá Prasád Majumdár, 22-2, Jhámápukur Lane, Calcutta.	.....	495
April 20th	154	12mo ...	6th ...	1,000	ditto ...	1 0 0	ditto ..	.....	496

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						III.—BENGALI AND
	LANGUAGE—*concld.*					
497	A Complete Key to Royal Reader No. II.	Bengali and English.	Purna Chandra Chakrabartti.	Language.	Printed at 22-2, Jhámápukur Lane, and published at 54-1, College Street, Calcutta.	Printed and published by Baradá Prasád Majumdár.
498	Key to Poetical English Reader No. I.	ditto ...	G. Mazumdár	ditto ...	ditto ditto ..	ditto ditto ...
499	A Complete Key to Poetical Class Book No. I.	ditto ...	Annadá Prasád Mazumdár.	ditto ..	ditto ditto ..	ditto ditto ...
500	A Complete Key to Douglas's English Reader No. IV.	ditto ...	Bimalá Charan Ghosh.	ditto ...	ditto ditto ...	ditto ditto ...
501	A Complete Key to Easy Selections.	ditto ...	Nrisinha Chandra Mukhopádhyáya.	ditto ..	ditto ditto ...	ditto ditto ...
502	The first step in Grammar.	ditto ..	Akrur Chandra Sen.	ditto ...	Printed and published at the Adarsha Press, Dacca.	Printed by Lakshman Basák, and published by Akrur Chandra Sen.
503	Middle Class English Composition.	ditto ...	Brindában Dhar.	ditto ..	Printed and published at the Girish Press, Dacca.	Printed and published by Kalimuddin.
504	The Child's Grammar ...	ditto ...	Kishori Mohan Basu.	ditto ...	Printed and published at the East Bengal Press, Dacca.	Printed and published by K. D. Basák.
505	Boys' Guide ...	ditto ...	B. K. Datta and B. C. Basu.	ditto ...	Printed and published at Barisal.	Printed by Hara Kumar Kar, and published by B. K. Datta and B. C. Basu.
						IV.—BENGALI AND
	RELIGION.					
1	Buddha Bhajaná. The worship of Buddha.	Bengali and Pali.	Compiled by Bhagirath Chandra Baruá.	Religion, Bhuddist.	Printed and published at Andarkilla, Chittagong.	Printed by Jagat Chandra Dás, and published by Bhagirath Chandra Baruá.
						V—BENGALI AND
	LANGUAGE					
	The following works are designed for educational purposes.					
1371	Byákaran Kaumudi. A Sanskrit Grammar for Beginners. Parts II and III (together).	Bengali and Sanskrit.	Iswar Chandra Bidyáságar.	Language.	Printed at 62, Amherst Street, and published at 25, Sukea's Street, Calcutta.	Printed by Jajneswar Mukharji, and published by the Calcutta Library.
1372	Sanskrita Byákaran, Upakramanika. Introduction to Sanskrit Grammar.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1373	Byákaran Samgraha. Elements of Sanskrit Grammar.	ditto ...	Heramba Náth Tattvaratna.	ditto ...	Printed and published at 24, Giris Bidyáratna's Lane, Calcutta.	Printed by Sashi Bhushan Bhattácháryya, and published by Harish Chandra Kabiratna.
1374	Sudhákar Byákaran. A Sanskrit Grammar.	ditto ...	Shyámá Charan Kabiratna.	ditto ...	Printed and published at 24, Beadon Street, Calcutta.	Printed and published by Mani Mohan Rakshit.
1375	Kaláp Byákaranam. A Sanskrit Grammar. (T.)	ditto ...	Edited by Kálisha Chandra Sen Gupta.	ditto ...	Printed at 113, Musjidbari Street, and published at 35, Maniktala Street, Calcutta.	Printed by Jogendra Náth Mallik, and published by Kálisha Chandra Sen Gupta.
	LAW.					
1376	Mitáksharà. A treatise on Hindu Law. (T.)	ditto ...	Translated by Aghor Náth Tattvanidhi.	Law ...	Printed and published at Burdwan.	Printed by Purushottam Deb Chattaráj, and published by H. R. Reily and Ban Bihari Kapur.

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ENGLISH BOOKS—concluded.									
1889.	Pages.					Rs. A. P.			
April 20th	36	12mo ...	7th ...	2,000	Printed	0 4 0	Barada Prosaud Majumdar, 22-2, Jhámápukur Lane, Calcutta.	.....	497
„ 21st	84	12mo ...	5th ...	1,000	ditto ...	1 0 0	ditto ...	.....	498
„ 25th	65	12mo ...	2nd ...	1,000	ditto ...	0 4 0	ditto ...	.....	499
May, 20th	156	12mo ...	4th ...	1,000	ditto ..	0 10 0	ditto ...	.....	500
„ 25th	264	12mo ...	6th ...	2,000	ditto ...	1 0 0	ditto ...	.....	501
„ 15th	69	12mo ...	New.	1,000	ditto ...	0 5 0	.....	.....	502
April, 1st	92	12mo ...	5th ...	2,000	ditto ...	0 6 0	.....	.....	503
June, 2nd	84	12mo ...	2nd ...	1,000	ditto ..	0 5 0	.....	.....	504
May, 17th	50	10 × 6	2nd ...	1,000	ditto ...	0 4 0	.....	.....	505
PALI BOOK.									
1889.									
Mar., 25th	31	12mo dy	1st ...	1,000	ditto ...	0 2 0	Bhagirath Chandra Baruá, Gujárá.	The daily religious prayers, invocations, and vows of an orthodox Buddhist of the Southern School The present work differs from a similar work in Ceylon entitled Buddha Yáda Hilla, or the Buddhist Faith, in having the short *a* always lengthened into *á*, as Dhamma into Dhámmá.	1
SANSKRIT BOOKS.									
1889.									
Mar., 26th	204	12mo ...	24th...	2,000	ditto ...	1 0 0	Iswar Chandra Bidyáságar, 25, Brindában Mallik's Lane, Calcutta.	.....	1371
April, 1st	139	12mo ...	35th .	6,000	ditto ...	0 8 0	ditto ...	.....	1372
„ 7th	312	12mo dy	9th ...	2,000	ditto ...	1 0 0	Heramba Náth Tattwaratna, Grey Street, Calcutta.	.....	1373
„ 27th	294	12mo dy	1st ...	1,000	ditto ...	1 8 0	.....	The writer follows the system of Pandit Iswarachandra Vidyáságara, and appends a list of grammatical roots at the end of his work.	1374
May, 18th	66	16mo rl.	1st ...	600	ditto ...	0 4 0	.....	The rules of Sarba Barmá with the *vritti* of Durga Sinha and a Bengali translation. It contains the chapter on Sandhi only.	1375
1295.									
Magh., 23rd.	476	8vo rl...	1st ...	500	ditto ...	.....	Burdwan Raj Estate.	The chapter on expiations only. It contains the text of Jajnavalkya and a Bengali translation made according to Bijnáneswar's commentary entitled the Mitáksharé.	1376

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						BENGALI AND
	MEDICINE.					
1377	Sánubád Nárijnán. The knowledge of the Pulse, with a translation. (T.)	Bengali and Sanskrit.	Edited by Rámbramha Sen.	Medicine, N.	Printed at 2, Tárak Chatterji's Lane, and published at 115, Chitpur Road, Calcutta.	Printed by Nabakumár Bose, and published by Umesh Chándra Bhattácháryya.
1378	Nútan Bhaishajya Dhanvantari. A treatise on Hindu Medicine. (T.)	ditto ..	Translated by Chandra Kumár Kabi bhusan.	ditto ...	ditto ditto ...	Printed by Nabakumár Bose, and published by Bhattácháryya and Company.
	MISCELLANEOUS.					
1379	Jyotish Kalpadruma. An Astrological Compilation. Part 16. (T.)	ditto ..	Edited by Rasik Mohan Chatterji.	Miscellaneous.	Printed and published at 5, Simla Street, Calcutta.	Printed by Gopál Chandra Ghosál, and published by Rasik Mohan Chatterji.
1380	Ditto ditto. Part 17. (T.)	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
1381	Ditto ditto. Part 18. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1382	Sánubád Rati Shástra The Science of Love, with a translation. (T.)	ditto ...	Translated by Beni Mádhab Nyáyaratna.	ditto ...	Printed and published at 68, Nimu Gosain's Lane, Calcutta.	Printed by Káli Prasanna Ráya, and published by Sri Nath Láhá.
1383	Niti Payodhi. The Ocean of Morality. (T.)	ditto ...	Kailás Chandra Mazumdár.	ditto ...	Printed and published at the Girls Press, Dacca.	Printed by Kalimuddin, and published by Hari Náráyan Mitra.
	PHILOSOPHY.					
1384	Vedánta Darshanam. The Vedanta Philosophy. Part 15. (T.)	ditto ...	Translated by Kálibar Vedántabágish.	Philosophy	Printed at 22, Old Baitakkhana 2nd Lane, and published at 2, Nursing's Lane, Calcutta.	Printed by Ramá Náth Ghosh, and published by Mati Lál Ghosh.
1385	Ditto ditto. Part 16. (T.)	ditto ..	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
	RELIGION.					
1386	Srimad Bhágabatam, Part 65. (T.)	ditto ...	Translated by Rám Náráyan Bidyáratna.	Religion H.	Printed and published at Berhampore.	Printed by Rám Náráyan Bidyáratna, and published by Rájballabh Sháhá.
1387	Ditto ditto Part 66. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1388	Ditto ditto Part 67. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1389	Joga-Básistha Rámáyanam. The Rámáyan containing Lectures on Yoga by Basistha. Part 7. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1390	Ditto ditto Part 8. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1391	Adhyátma Rámáyanam. The Rámáyan in a Spiritual Form. (T.)	ditto ...	.....	ditto ...	Printed and published at 34 1, Kalutola Street, Calcutta.	Printed and published by Bihári Lál Sarkár.
1392	Srimad Debi Bhágabatam Mahápuránam. One of the Mahápurans. Part 8. (T.)	ditto ...	Edited by Hari Charan Basu.	ditto ...	Printed and published at 71, Pathuriaghata Street, Calcutta	Printed by Káli Prasanna Basu, and published by Hari Charan Basu.
1393	Ditto ditto Part 9. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1394	Ditto ditto Part 10. (T.)	ditto ..	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
1395	Ditto ditto Part 11. (T.)	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto ditto ...

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SANSKRIT BOOKS—continued.									
1889.	Pages.					Rs. A. P.			
May, 5th	44	12mo dy	1st ...	1,000	Printed	0 4 0	Umesh Chandra Bhattácháryya, Calcutta.	Directions for feeling the pulse. The writer says that the native physicians know the art of feeling the pulse to perfection, while the students of the Medical College seem to neglect this most important branch of medical science.	1377
„ 7th	512	8vo rl	1st ..	1,000	ditto ...	3 0 0	ditto ...	A new compilation from standard works on Hindu Medicine, the text being in Sanskrit, and the translation in Bengali. It contains the symptoms of diseases, their pathology, and the medicines to be applied for their cure.	1378
April 3rd	96	8vo rl	1st ...	1,000	ditto ..	1 0 0	Rasik Mohan Chatterji, 5 Simla Street, Calcutta.	Contains a portion of the Bhrigu Sanhita, and of the Tajika by Nilakantha. It contains a complete work entitled *Panchasvará*, which gives directions for calculating astrologically the longevity of man. The five *swaras* are arbitrarily determined by placing certain consonants with vowels below the numbers indicating the *ráshis* or signs of the zodiac.	1379
May, 2nd	96	8vo rl	1st ...	1,000	ditto ...	1 0 0	ditto ...	Contains short instalments of a number of works on astrology.	1380
June, 1st	96	8vo rl	1st ...	1,000	ditto ...	1 0 0	ditto ...	Contains a treatise on palmistry,...	1381
May, 11th	160	12mo dy	1st ...	1,000	ditto ...	2 0 0	Sri Náth Láhá, Calcutta.	Contains information on a variety of subjects connected with the preservation of infant life, mystic formulæ, *mustijog* medicines, &c.	1382
June, 12th	41	12mo ...	1st ...	1,000	ditto ...	0 4 0	.....	Contains Sanskrit verses with Bengali translation for regulating the conduct of men from conception to manhood.	1383
April 1st	40	8vo dy	1st ..	1,000	ditto ...	0 5 0	Mati Lál Ghosh, 2, Nursing's Lane, Calcutta.	The aphorisms of Bádaráyana, with Sankar's *bháshya*, the *bhamati*, an abridged commentary by the editor and a Bengali translation by him.	1384
May, 22nd	40	8vo dy	1st ...	1,000	ditto ...	0 5 0	ditto ...	ditto ditto.	1385
Mar., 22nd	40	4to ...	2nd ...	4,000	ditto ...	.....	.....	With commentaries of Sridhar Svámí, Jiva Gosvami, and Vishvanáth Chakrabarti. Goes on with the tenth Skandha.	1386
„ 22nd	40	4to ...	2nd ...	4,000	ditto ...	.....	.....	ditto ditto ...	1387
„ 22nd	40	4to ..	2nd ...	4,000	ditto ...	.....	.....	ditto ditto ...	1388
„ 23rd	80	8vo ...	1st ...	500	ditto ...	0 12 0	.....	With commentary entitled *Prakásha*, and a Bengali translation.	1389
„ 23rd	80	8vo ...	1st ...	500	ditto ...	0 12 0	.....	ditto ditto ...	1390
„ 25th	266	8vo rl	1st ...	9,000	ditto ...	1 8 0	Jogendra Chandra Bose, 31-1, Kalutola Street Calcutta.	The divinity of Rama has been put forward in a more pronounced form than in the work of Valmiki.	1391
„ 15th	72	8vo rl	1st ...	1,000	ditto ...	0 6 0	Hari Charan Basu, 71, Pathuriaghata Street, Calcutta.	The text, the commentary entitled *Tilaka* and a Bengali translation.	1392
„ 27th	72	8vo rl	1st ..	1,000	ditto ...	0 6 0	ditto ...	ditto ditto ..	1393
April, 10th	72	8vo rl	1st ...	1,000	ditto ...	0 6 0	ditto ..	ditto ditto ..	1394
May, 1st	72	8vo rl	1st ...	1,000	ditto ...	0 6 0	ditto ...	ditto ditto ...	1395

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Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						BENGALI AND
	RELIGION—*concld.*					
1396	Mahabharatam. Part 130 (T.)	Bengali and Sanskrit.	Translated by Sridhar Churámani.	Religion H	Printed and published at Serampore.	Printed by Thákurdás Ghosál, and published by Umesh Chandra Bhattácháryya.
1397	Sánubád Brihat Tantra Kosha. A Tantric Compilation with a Translation. (T.)	ditto ...	Compiled by Káli Prasanna Bidyáratna.	ditto ...	Printed at 1, Nimu Gosain's Lane, and published at 1, Garanhata Street, Calcutta.	Printed by Mákhan Lál Ghosh, and published by Ganesh Chandra Ghosh.
1398	Sri Bhagabati Gita. A Treatise on the Greatness of Durga. (T.)	ditto ...	Translated by Rám Ratna Bhattácháryya	ditto ...	Printed and published at 99, Ahiritola Street, Calcutta.	Printed and published by Nrityalál Sil.
1399	Bhakti Lahari. Waves of *Bhakti*. (T.)	ditto ...	Krishna Chandra Bipra.	ditto ...	Printed and published at 24, Giris Bidyaratna's Lane, Calcutta.	Printed by Shashi Bhushan Bhattácháryya, and published by Harish Chandra Kabiratna.
1400	Smarana Mangal. Remembrance of Krishna's Auspicious Sports at Brindaban. (R.)	ditto ...	Narottam Dás	ditto ...	Printed and published at 99, Ahiritola Street, Calcutta.	Printed and published by Nrityalál Sil.
1401	Atma Bodha. Knowledge of the Soul. (T.)	ditto ..	Translated by Prasád Dás Gosvami.	ditto ...	Printed and published at Serampore.	Printed and published by Jitendra Nath Dé.
1402	Satya Náráyan Bratam. The worship of Satya Narayana.	ditto ...	Compiled by Mahendra Náth Bidyá ratna.	ditto ...	Printed at 147, Upper Chitpore Road, Calcutta, and published at Sahara.	Printed by Umesh Chandra Pál, and published by Mahendra Nath Bidyáratna.
						VI.—ENGLISH AND
	LANGUAGE.					
	The following work is designed for educational purposes.					
45	Shikshá Mani. English-Hindi Vocabulary.	English and Hindi.	Dina Náth Dev	Language	Printed at 75, and published at 132, Cotton Street, Calcutta.	Printed by Bisva Náth Brahmachári, and published by Mungi Lál Chiráwálá.
						VII.—ENGLISH AND
	LANGUAGE.					
	The following work is designed for educational purposes.					
62	Niti Pátham. A Sanskrit Reader. (R.)	English and Sanskrit.	Compiled by Shyámá Charan Kabiratna.	ditto ...	Printed at 21, Sitárám Ghosh's Street, and published at the New Indian School, Calcutta.	Printed by Shashi Bhushan Datta, and published by Shyámá Charan Kabiratna.
						VIII.—ENGLISH AND
	LANGUAGE.					
	The following work is designed for educational purposes.					
34	Key to the New Royal Reader. No. I.	English and Uriya.	Akshaya Kumár Ghosh and Srikrishna Mahápátra.	ditto ...	Printed and published at the Printing Company's Press, Cuttack.	Printed and published by the Cuttack Printing Company.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number
SANSKRIT BOOKS—concluded.									
1889.	Pages.					Rs. A. P.			
May 18th	80	8vo rl ..	1st ..	300	Printed	0 8 0	Jadu Nath Set, Serampore.	Goes on with the Dronaparba ...	1396
April 4th	190	8vo dy...	2nd ...	6,000	ditto ...	1 8 0	Ganesh Chandra Ghosh, Calcutta.	The usual contents of a *Tantric* work. The definition of a preceptor and of a disciple, the various sorts of postures called *ásans*, the various ways of joining the palms and fingers in invoking celestial spirits technically called *mudrás*, the method of initiation, the regulation of the breath by closing the nostrils, the various celestial spirits to be invoked, the various modes of propitiation of various divinities, the mystic rites, the attainment of supernatural power.	1397
Mar. 27th	48	12mo ...	2nd ...	1,000	ditto ...	0 1 6	.....	.....	1398
„ 15th	12	8vo dy .	1st ...	500	ditto ...	0 3 0	Krishna Chandra Ráya, Básara, Dinagepore.	Contains 42 verses expressive of devotion to Rama.	1399
„ 28th	20	12mo ..	2nd ..	2,000	ditto ...	0 1 0	.....	In eleven verses Rupa Goswami gives an account of the feelings of Radha and Krishna during the course of the day, and Narottam Das translates these into Bengli averse.	1400
May 5th	60	12mo dy	1st ...	1,000	ditto ...	0 4 0	Prasád Dás Gosvámi, Serampore.	Sankaráchárayya's well known work with a Sanskrit commentary and a Bengali translation.	1401
„ 20th	60	12mo dy	1st ...	1,000	ditto ...	0 4 0	Suryya Kumár Mukharji, 21, Sankar Háldár's Lane, Calcutta.	Said to be a portion of the *Reva Khanda* of the Skanda Purán.	1402
HINDI BOOK.									
May 2nd	136	8vo rl...	1st ..	1,000	Printed	0 12 0	Dina Náth Dev, 19, Rajá's Chak, and Mungi Lál, 132, Cotton Street, Calcutta.	A word-book in English and Hindi.	45
SANSKRIT BOOK.									
April 19th	108	12mo ...	1st ...	1,000	ditto ...	1 0 0	Shyámá Charan Kabiratna, 47, Benetola Lane, Calcutta.	A new school-book	62
URIYA BOOK.									
April 15th	22	12mo rl.	1st ...	1,000	ditto ...	0 3 0	Akshaya Kumár Ghosh and Srikrishna Mahápátra.	.....	34

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						IX.—PERSIAN AND
	LANGUAGE.					
10	Pharsi Amoj. The Persian Instructor.	Porsian and Urdu.	Abdul Hai ...	Language	Lithographed and published at the Union Press, Bankipore.	Lithographed and published by Rahimuddin.
						X.—SANSKRIT AND
	RELIGION.					
51	Srimadbhágabatam. Skandha I. (T).	Sanskrit and Uriya.	Raja of Talchera.	Religion, H.	Printed and published at Cuttack Printing Company's Press, Cuttack.	Printed and published by the Cuttack Printing Company.
						TRI-LINGUAL
						I.—BENGALI,
	LANGUAGE.					
80	Rijubodhini. A Key to Rijupatha. Part I.	Bengali, English, & Sanskrit.	Baikuntha Chandra Náth.	Language.	Printed and published at the Adarsha Press, Dacca.	Printed by Lachman Basák, and published by Baikuntha Chandra Náth.
81	Riju Byákhyá. A Complete Key to Rijupatha Part I.	ditto ...	Káli Saháya Ráya Chaudhuri.	ditto ...	Printed at 22-2, Jhámápukur Lane, and published at 54-1, College Street, Calcutta.	Printed and published by Baradá Prasád Majumdár.
82	Riju Bibriti. A Key to Rijupatha. Part I.	ditto ...	Shyámá Charan Chatterji.	ditto ...	Printed and published at 23-1, Bechu Chatterji's Street, Calcutta.	Printed and published by Jadu Náth Sil.
						I—UNI-LINGUAL
						I—BENGALI
	ART.					
2142	Krishi Gejet. The Agricultural Gazette. A monthly paper. Vol. I.	Bengali	Edited by G. C. Bose.	Art ...	Printed and published at 34-1, Kalutola Street, Calcutta.	Printed and published by Bihári Lal Sarkár.
2143	Ditto ditto. Vol. II. No. 13.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
2144	Ditto ditto. Vol. II No. 14.	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto ditto ...
2145	Ditto ditto. Vol. II. No. 15.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
2146	Ditto ditto. Vol. II. No. 16.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2147	Ditto ditto. Vol. II. Nos. 17 and 18.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2148	Ditto ditto. No. 19	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2149	Ditto ditto. No. 20	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2150	Ditto ditto. No. 21	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
2151	Ditto ditto. No. 22	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
2152	Ditto ditto. No. 24	ditto ..	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2153	Ditto ditto. Nos. 25 and 26 (together).	ditto ...	ditto ...	Art ...	Printed at 34-1, Kalutola Street, and published at 116, Bowbazar Street, Calcutta.	Printed by Bihárilal Sarkár, and published by Hari Dás Pátra.

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URDU BOOK.									
1889.	Pages.					Rs. A P.			
Mar. 25th	80	8vo ...	2nd ...	1,000	Lithographed.	0 10 0	Abdul Hai, Bankipore.	.....	10
URIYA BOOK.									
Mar. 12th	222	8vo rl....	1st ...	1,000	Printed	Nil	Raja of Talchera.	The text and an Uriya translation made from the Bengali translation of Pandit Rámá Náráyan Vidyáratna.	51
BOOKS.									
ENGLISH, AND SANSKRIT BOOKS.									
1889.									
Mar. 31st	176	12mo ...	3rd ...	1,000	ditto ...	0 8 0	.....	.....	80
April 21st	252	12mo ...	7th ...	3,000	ditto ...	0 8 0	Baradá Prasád Majumdár, 22-2, Jhamapukur Lane, Calcutta.	.....	81
May 6th	288	12mo dy	2nd ...	2,000	ditto ...	0 10 0	Shyámá Charan Chatterji, 11, Jorápukur Lane, Calcutta.	.....	82
PERIODICALS.									
PERIODICALS.									
.....	288	fcap. ...	1st ...	500	ditto ...	.....	G. C. Bose, 34-1, Kalutola Street, Calcutta.	Articles on agricultural and economic subjects. Twelve parts bound together.	2142
1293 B.S.	24	fcap. ...	1st ...	500	ditto ...	0 6 0	G. C. Bose, 116 Bowbazar Street, Calcutta.	The cultivation of cotton; agricultural education; trade in cotton yarn and cloth of Calcutta.	2143
ditto ...	24	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	.....	2144
ditto ...	24	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	.....	2145
ditto ...	24	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	Sugarcane cultivation in Puna	2146
.....	48	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	Articles on agricultural and economic subjects.	2147
ditto ...	24	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	Draught cattle; woollen work in the Punjab; cultivation of tobacco in Burma.	2148
ditto ...	24	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	Grapes of Cashmere; cultivation of ginger, &c.	2149
ditto ...	24	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	The tannery at Cawnpore; Indian silk; cultivation of pepper on the Malabar coast, &c.	2150
ditto ...	24	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	The Cirencester agricultural students; the cultivation of tobacco; mulberry plantation, &c	2151
ditto ...	24	fcap. ...	1st ...	500	ditto ...	0 6 0	ditto ...	Articles on wheat, jute, musk, rubber, &c.	2152
1294 B.S.	48	fcap. ...	1st ...	225	ditto ...	0 6 0	ditto ...	The manufacture of candles; fish trade; the cultivation of jute, &c.	

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						I.—BENGALI
	ART—*concluded.*					
2154	Krishi Gejet. The Agricultural Gazette. A monthly paper. Nos. 27 to 30, (together).	Bengali.	Edited by G. C. Bose.	Art ...	Printed at 66, College Street, and published at 116, Bowbazar Street, Calcutta.	Printed by Binodbihári Majumdar, and published by Hari Dás Pátra.
2155	Ditto ditto. Nos. 31 to 36 (together).	dit to ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
2156	Ditto ditto. No. 37	ditto ...	ditto ...	ditto ...	Printed at 1, Pítámbar De's Lane, Serampore, and published at 116, Bowbazar Street, Calcutta.	Printed by Raghunáth Pál, and published by Hari Dás Pátra.
2157	Ditto ditto, No. 38	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2158	Ditto ditto. No. 39	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2159	Ditto ditto. Nos. 45 to 48.	ditto ...	ditto ...	ditto ...	Printed at Serampore, and published at Calcutta.	Printed by Jitendranath Dé, and published by Hari Dás Pátra.
	MEDICINE.					
2160	Chikitsá Sammilani. The bringing together of different systems of Medicine. A monthly paper. Vol. V. Nos. 7 to 9 (together).	ditto ...	Edited by Abinash Chandra Kabiratna.	Medicine, E. & N.	Printed at 5, Simla Street, and published at 200, Cornwallis Street, Calcutta.	Printed by Gopal Chandra Ghoshál, and published by Abinásh Chandra Kabiratna.
	MISCELLANEOUS.					
2161	Anusandhán. Inquiry. A Fortnightly Review Vol. II. No. 18.	ditto ...	Edited by Durgá Dás Láhiri	Miscellaneous.	Printed at 34, Benetola Lane, and published at 58, College Street, Calcutta.	Printed by Ashutosh Banerji, and published by the Anusandhán Samiti.
2162	Ditto ditto. Vol. II. No. 19.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2163	Aryya Pratibhá. The Genius of the Aryan Race. Vol. I. No. I.	ditto ...	...	ditto ...	Printed at 65-2, Beadon Street, and published at 118, Upper Chitpur Road, Calcutta.	Printed by R. K. Bhattácháryya, and published by Baishnab Charan Basák.
2164	Ditto ditto. Vol. I. No 2.	ditto ...	...	ditto ...	ditto ditto ...	ditto ditto ...
2165	Bámábodhini Patriká. A monthly journal for the instruction of women. No. 291.	ditto ...	Edited by Umesh Chandra Datta.	ditto ...	Printed at 13, Cornwallis Street, and published at 9, Antony Bágán Lane, Calcutta.	Printed by Kártik Chandra Datta, and published by Ashutosh Ghosh.
2166	Ditto, ditto, No. 292.	ditto ...	ditto ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2167	Bhárati O Bálak. A monthly paper. Vol. XII. No. 10.	ditto ...	Edited by Svarna Kumári Debi.	ditto ...	Printed at 55, Chitpur road, and published at Kasibagan Garden House, Ultadingi, Calcutta.	Printed by Kalidas Chakrabarti, and published by Satish Chandra Mukharji.
2168	Ditto ditto. Vol XII, Nos. 11 and 12 (together).	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
2169	Ditto ditto. Vol XIII. No. 1.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2170	Bhárat Shramajibi. Vol. III. No. 2.	ditto ...	Edited by Shashi Bhusan Biswás.	ditto ...	Printed at 8, Kalutola street, and published at 6, Nawabdi Ostagar's lane, Calcutta.	Printed by Mákhan Lál Raya, and published by the Editor.

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PERIODICALS—continued.									
1887.	Pages.					Rs. A. P.			
Feb. 1st	34	F cap....	1st ...	225	Printed	4 2 0	G. C. Bose, 116, Bowbazar Street, Calcutta.	Trade in wool in Bengal; cultivation of date-trees in India; &c.	2154
April 12th	41	F cap....	1st ...	225	ditto ...		ditto ...	Silk trade in the Punjab; cotton mills in Bengal; the best method of preparing grafts, &c.	2155
May 13th	16	F cap....	1st ...	200	ditto ...	0 6 0	ditto ...	Blight of rice and wheat; cultivation of sugarcane in Bombay; the Agricultural College at Cirencester.	2156
June 14th	16	F cap..	1st ...	200	ditto ...	0 6 0	ditto ...	Dentition of domesticated animals; medicine for the destruction of worms; brass and copper plates of the Punjab, &c.	2157
July 14th	16	F cap...	1st ...	200	ditto ..	0 6 0	ditto ...	Increase of productive power by means of manure composed of nitrogenous matter; the necessity of manure; grass as fodder; the wheat trade.	2158
1889.									
June 10th	32	F cap....	1st ...	250	ditto ...	1 8 0	ditto ...	Dairy farming in Calcutta; the Agricultural Department; the cultivation of turmeric; the soil; silk; manure from cowdung; cultivation of potato; how to test manure for potato cultivation; the cultivation of sugarcane; coir; the rearing of coconut trees.	2159
April 9th	96	8vo dy...	1st ...	1,000	ditto ...	0 6 0 per No.	Abinásh Chandra Kabiratna, 200, Cornwallis Street, Calcutta.	The usual contents ...	2160
April 23rd	18	8vo rl ...	1st ...	800	ditto ..	0 2 0	Durgá Dás Láhiri	.....	2161
May 12th	18	8vo rl ..	1st ...	800	ditto ..	0 2 0	ditto ...	.....	2162
April 8th	36	12mo rl	1st ...	1,000	ditto ...	0 4 0	Baishnab Charan Basak, 118 Upper Chitpur Road, Calcutta.	Articles on a variety of subjects	2163
,, 8th	36	12mo rl	1st ...	1 000	ditto ...	0 4 0	Ditto ...	ditto ditto ...	2164
,, 12th	32	8vo rl ...	1st ...	1,000	ditto ..	0 4 0	Umesh Chandra Datta.	Articles suited to female tastes ...	2165
May 9th	32	8vo rl ..	1st ...	1,000	ditto ...	0 4 0	ditto ...	ditto ditto ...	2166
Feb. 26th	58	8vo rl ...	1st ...	1,000	ditto ...	0 6 0	Svarna Kumári Debi, Kasiabagan Garden House, Ultadingi, Calcutta.	Continues the articles on the Baillie Guard at Lucknow and on the Vedanta and Kantian systems of Philosophy.	2167
April, 12th	102	8vo rl ...	1st ...	1,000	ditto ...	0 12 0	ditto ...	Continues the description of the Baillie Guard at Lucknow.	2168
May 22nd	62	8vo rl ...	1st ...	1,000	ditto ..	0 6 0	ditto ...	Continues the article on the Vedanta and Kantian Schools of Philosophy.	2169
Feb. 28th	8	4 to dy...	1st ...	1,200	ditto ...	.....	.....	The writer thinks that the cultivation of *Iragrostis Abyssinica*, the seed of Shyámá grass, and lotus seed is likely to prevent the possibility of famines and scarcities in India.	2170

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						I.—BENGALI
	MISCELLANEOUS—*contd.*					
2171	Bhárat Sanjiban. India Revived. A monthly paper. Vol. I. No. 2	Bengali	Edited by Bhupati Náth Dás and Brothers.	Miscellaneous.	Printed and published at the Budhodaya Press, Hugli.	Printed and published by Siddheswar Dás.
2172	Ditto ditto. Vol. I. No. 3.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2173	Ditto ditto. Vol. I. No. 4.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2174	Dipiká. A monthly paper. Vol. II. No. 2.	ditto ...	Edited by Pyári Mohan Haldar.	ditto ...	Printed at 17, Sri Náth Das's Lane, and published by 54, Malanga Lane, Calcutta.	Printed by Amrita Lál Ghosh, and published by the Sulabh Sáhitya Prakásh Karyyálaya.
2175	Ditto. ditto. Vol II No. 3.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2176	Ditto. ditto. Vol. II No. 4.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2177	Ditto. ditto. Vol. II. No. 5.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2178	Ditto. ditto. Vol. II. No. 6.	ditto ..	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2179	Ditto. ditto. Vol. II. No. 7.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2180	Kalpaná. A monthly paper. Vol. VI. No. 3.	ditto ..	Edited by Haridás Banerji.	ditto ...	Printed at 23, and published at 25, Panchánantalá Lane, Calcutta.	Printed by Rámbrahma Kumar, and published by Bipin Bihári Basu.
2181	Karnadhár. The Helmsman A monthly paper Vol. I. No. 2.	ditto ...	Edited by Hárán Chandra Rakshit.	ditto ...	Printed at 3, Maniktalá Street, and published at 19, Cornwallis Street, Calcutta.	Printed by Nagendra Nath Basu, and published by Jogindra Nath Rakshit.
2182	Krirá O Kautuk. Fun and Frolic. A weekly paper. Vol. I. No. 9.	ditto ...	Edited by Rádhesh Chandra Set.	ditto ...	Printed and published at 3, Maniktalá Street, Calcutta.	Printed and published by Nagendra Nath Basu.
2183	Ditto ditto. Vol. I No. 10.	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto ditto ...
2184	Ditto ditto. Vol. I. No. 11.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2185	Ditto ditto. Vol. I. No. 12.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2186	Nabyabhárat. New India. A monthly paper. Vol. VI. No. 12.	ditto ...	Edited by Debi Prasanna Ráya Chaudhuri.	ditto ...	Printed at 36, Káliprasád Datta's Street, and published at 210-4, Cornwallis Street, Calcutta.	Printed by Son and Son, and published by Debiprasanna Raya Chaudhuri.
2187	Ditto ditto. Vol. VII. No. 1.	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto ditto ...
2188	Nabajiban. The New Life. A monthly paper Nos. 50-51 (together).	ditto ...	Edited by Akshaya Chandra Sarkár.	ditto ...	Printed and published at 65, Akhil Mistri's Lane, Calcutta.	Printed and published by Rái Chandra Ghose.
2189	Ditto ditto. No. 52	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2190	Sakhá. Companion. A monthly paper. Vol. VII. No. 3.	ditto ...	Edited by Annadá Charan Sen.	ditto ..	Printed and published at 2, Benetola Lane, Calcutta.	Printed and published by Natabar Chakrabartti.
2191	Ditto ditto. Vol. VII. No. 4.	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto. ditto ...
2192	Sachitra Banga Rahasya Illustrated Bengali Punch. Vol. I. Nos. 3 and 4.	ditto ...	Edited by Dwáraká Nath Mukharji.	ditto ...	Printed at Uttarpárá, and published at Calcutta.	Printed and Shashibhushan Ghose, and published by Dwarakánath Mukharji.
2193	Sáhitya-Ratna Bhándár. The Store-house of the Gems of Literature. Vol. I. No. 1.	ditto ...	Edited by Krishna Chandra Mukharji.	ditto ...	Printed at 113, Masjidbári Street, and published at 2, Kánái Lál Dhar's Lane, Calcutta.	Printed by Jogendranáth Mallik, and published by Bhairab Chandra Dás.

Quarter ending 30th June 1889—continued.

8	9	10	11	12	13	14	15	16	17
Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
PERIODICALS—continued.									
1889	Pages.					Rs. A. P.			
Mar.,	16	8vo	1st	1,000	Printed	0 2 0	Bhupati Náth Dás and Brothers, Chinsura.	The avowed object of this new monthly is to support idolatry, and to oppose every proposal for a change in any direction.	2171
April, 27th	16	8vo	1st	1,000	ditto	0 2 0	ditto	ditto ditto	2172
May, 31st	16	8vo	1st	1,000	ditto	0 2 0	ditto	ditto ditto	2173
Mar., 27th	24	8vo dy	1st	2,000	ditto	0 4 0	Pyári Mohan Haldar, 54, Malanga Lane, Calcutta.	Articles of social, literary and antiquarian interest.	2174
„ 27th	24	8vo dy	1st	2,000	ditto	0 4 0	ditto	ditto ditto	2175
„ 27th	24	8vo dy	1st	2,000	ditto	0 4 0	ditto	ditto ditto	2176
April, 1st	24	8vo dy	1st	2,000	ditto	0 8 0	ditto	ditto ditto	2177
„ 1st	24	8vo dy	1st	2,000	ditto	0 4 0	ditto	ditto ditto	2178
„ 1st	24	8vo dy	1st	2,000	ditto	0 4 0	ditto	ditto ditto	2179
„ 5th	40	8vo dy	1st	1,000	ditto	0 8 0	Haridás Banerji, 25, Panchánantalá Lane, Calcutta.	Articles of literary and social interest.	2180
Mar., 15th	24	8vo dy	1st	400	ditto	0 2 0	Haran Chandra Rakshit, Mazilpur.	Pándit Hrishikesha Shástri ridicules those hypocrites who, having neglected orthodox rites and eaten English dinners all their lives, have now become orthodox Hindus, read the Bhagabadgítá without understanding it, fast on the eleventh day of the moon and boast of their Aryan origin.	2181
„ 23rd	4	Fcap	1st	300	ditto	0 0 3	Baikantha Náth Raya, Tahirpur.	Witty and funny sayings	2182
„ 23rd	4	Fcap	1st	300	ditto	0 0 3	ditto	ditto ditto	2183
„ 23rd	4	Fcap	1st	300	ditto	0 0 3	ditto	ditto ditto	2184
„ 23rd	4	Fcap	1st	300	ditto	0 0 3	ditto	ditto ditto	2185
April, 18th	76	8vo rl	1st	1,400	ditto	0 10 0	.....	Contains an account of Mukuta Ráya, who, about two centuries ago, tried to unite the different sections of the Brahmans of Bengal under one social system; and an article in which the writer exhorts his countrymen to adopt a middle course between radical go-aheadism and lifeless conservatism in the matter of social and national reforms.	2186
„ 29th	56	8vo rl	1st	1,500	ditto	0 7 0	.....	Contains articles on a variety of subjects.	2187
May, 7th	128	8vo dy	1st	1,000	ditto	0 5 0 per No.	Akshaya Chandra Sarkár, 61, Mirzápur Street, Calcutta.	In an article on the Congress the writer does not think that educated Bengalis are the representatives of the people.	2188
„ 15th	64	8vo dy	1st	1,000	ditto	0 5 0	ditto	One of the writers complains of the way in which school books are chosen. The Inspectors patronise their favourites at the expense of authors of high merit.	2189
Mar., 28th	16	8vo s rl	1st	1,500	ditto	0 1 6	Annadá Charan Sen, Calcutta.	Designed for the amusement and instruction of boys.	2190
April, 29th	16	8vo s rl	1st	1,500	ditto	0 1 6	ditto	.....	2191
May, 7th	24	8vo dy	1st	500	ditto	0 2 0	Dwaráká Nath Mukharji, Calcutta.	Witty stories and anecdotes	2192
April, 18th	16	8vo dy	1st	1,500	ditto	0 1 0	.....	Under the supervision of two of the well-known pundits of Calcutta. It contains articles of literary interest only.	2193

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						I.—BÉNGALI
	MISCELLANEOUS—*concld.*					
2194	Sáhitya-Ratna Bhándár The Store-house of the Gems of Literature. Vol. I. No. 2.	Bengali	Edited by Krishna Chandra Mukharji.	Miscellaneous.	Printed at 113, Masjidbari Street, and published at 2, Kánái Lál Dhar's Lane, Calcutta.	Printed by Jogendranáth Mallik, and published by Bhairab Chandra Dás.
2195	Shikshá Parichara. The Companion of Education. A monthly paper. Vol. I. No. 1.	ditto ..	Edited by Sarach Chandra Chaudhuri.	ditto ...	Printed and published at 92, Bowbazar Street, Calcutta.	Printed by Kishori Mohan Sen, and published by Prasanna Kumár Bhattácháryya.
2196	Sukhi Pákhi. The Happy Bird. A monthly paper Vol I. Nos. 7 and 8	ditto ...	Edited by Sáradá Prasád Basu.	ditto ...	Printed and published at Jessore.	Printed by Kshetra Gopál Sinha, and published by Sáradá Prasád Basu.
2197	Shuk Shári. The Parrot and his Mate. A monthly paper. Vol. I. No. 2.	ditto ...	Edited by Nibáran Chandra Kábyatirtha.	ditto ...	ditto ditto ...	Printed by Kshetra Gopal Sinha, and published by the Author.
	RELIGION.					
2198	Bedabyás. A monthly paper. Vol. III. No 12.	ditto ...	Edited by Bhudhar Chatterji.	Religion, H.	Printed and published at 34, Benetola Lane, Calcutta.	Printed by Ashutosh Banerji, and published by Amrita Lal Chatterji.
2199	Ditto ditto. Vol. IV No. 1.	ditto ...	ditto ...	ditto ...	ditto ditto ...	Printed and published by Ashutosh Banerji.
2200	Dharmabandhu. The Friend of Religion. A monthly paper. Vol. VIII. No. 1.	ditto ..	ditto ..	ditto, B.	Printed at 24, Beadon Street, and published at 100-4, Mechuábázár Road, Calcutta.	Printed by Mani Mohan Rakshit, and published by the Dharmabandhu Office.
2201	Khrishtiya Bándhab The Christian Friend A monthly paper Vol. XI. No. 1.	ditto ...	Edited by G. H. Rouse.	Religion, C.	Printed and published at the Baptist Mission Press, Calcutta.	Printed and published by G. H. Rouse.
2202	Ditto ditto. Vol. XI. No. 4.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2203	Ditto ditto. Vol XI. No. 5.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
2204	Shástra Páth-Sammilani An Association for the Study of the Holy Scriptures. A monthly paper. No. 1.	ditto ...	Edited by W. G. Brochway.	ditto ..	ditto ditto ...	ditto ditto ...
2205	Ditto ditto. Vol I. No. 2.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
						II.—ENGLISH
	ART.					
734	The Indian Agricultural Gazette. Vol. I.	English	Edited by G. C. Bose.	Art ...	Printed and published at 34-1, Kalutola Street, Calcutta.	Printed and published by Bihari Lal Sarkár.
735	Ditto ditto Vol. IV. Nos. 46 to 48.	ditto ..	ditto ...	ditto ..	Printed at Serampore, and published at Calcutta.	Published by H. Pátra: ...
	MISCELLANEOUS.					
736	Journal of the Asiatic Society of Bengal, Vol LVII. Part II. No. 4 1888.	ditto ...	Edited by the Natural History Secretary.	Miscellaneous.	Printed at the Baptist Mission Press, and published at 57, Park Street, Calcutta.	Printed by G. H. Rouse, and published by the Asiatic Society.
737	The Calcutta Review April 1889.	ditto ...	Edited by H. A. D. Phillips, C.S.	ditto ...	Printed and published at 12, Bentinck Street, Calcutta.	Printed and published by Thomas S. Smith.

Quarter ending 30th June 1889—continued.

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Date of issue from the press, or place of publication.	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number.
PERIODICALS—concluded.									
1889.	Pages.					Rs. A. P.			
June, 4th	16	8vo dy...	1st ...	1,000	Printed	0 1 0	Dwaráká Nath Mukharji, Calcutta.	Issued under the supervision of two well-known pundits of Calcutta. It contains articles of literary interest only.	2194
April, 20th	24	8vo rl...	1st ...	1,000	ditto ...	0 3 0	Sarach Chandra Chaudhuri, Putiya.	The objects of the work are the spread of correct ideas about education, the moral training of students, and the reformation of the present system of education.	2195
„ 24th	12	8vo dy...	...	.....	ditto ...	0 0 6	Sárádá Prasád Basu.	Articles of literary interest ...	2196
Mar., 20th	16	8vo dy ..	1st ...	1,000	ditto ...	0 1 6	Nibáran Chandra Kábyatirtha, Jessore.	Articles of literary, historical and scientific interest.	2197
April, 28th	22	8vo dy...	1st ..	800	ditto ...	0 4 0	Bhudhar Chatterji.	An organ of the Hindu revivalists of the Conservative school. In an article on the Congress the writer characterises the movement as mere childishness. It aims at impossibilities. It aims at cajoling Englishmen for the purpose of obtaining political privileges for natives. But the English are wide awake. The writer sounds a note of alarm warning orthodox Hindus against the attempt of a section of the Congressists to encourage widow marriage, to discourage early marriage, and to remove the social obstacles in the way of undertaking journeys to England.	2198
May, 15th	28	8vo rl...	1st ...	900	ditto ...	0 4 0	Gáyatri Sundari Debi.	.....	2199
April, 28th	32	8vo dy...	1st ...	550	ditto ...	0 4 0	.....	An organ of the Sádháran Brahmo Samaj.	2200
Jan., 12th	24	8vo rl....	1st ...	550	ditto ...	0 1 6	G. H. Rouse, Baptist Mission Press, Calcutta.	An organ of the Christian community of Bengal.	2201
Mar., 30th	24	8vo rl....	1st ...	550	ditto ..	0 1 6	ditto ...	ditto ditto ...	2202
May, 2nd	28	8vo rl....	1st ...	500	ditto ..	0 1 6	ditto ...	ditto ditto ..	2203
April, 11th	8	8vo rl....	1st ...	2,000	ditto ...	.....	Revd. W. G. Brochway, Bhawanipur.	ditto ditto ...	2204
May, 3rd	20	8vo rl....	1st ...	2,000	ditto ...	.....	ditto ...	ditto ditto ...	2205
PERIODICALS.									
...	288	4to Fc...	1st ...	500	ditto ...	...	G. C. Bose, 116, Bow Bazar Street, Calcutta.	Articles on a variety of agricultural and economic subjects. Twelve parts issued together.	734
June, 5th	32	4to Fc...	1st ...	250	ditto ...	2 0 0	ditto ...	The Assam Agricultural Department; Horse and Pony breeding Operations in the Madras Presidency; Coir fibre; Jute trade of Calcutta; Gunny bags, Gunny cloth; James Montgomery on China grass.	735
Mar., 23rd	124	8vo rl ...	1st ...	650	ditto ...	1 8 0	Asiatic Society, 57, Park Street, Calcutta.	.....	736
April, 1st	263	8vo dy...	1st ...	350	ditto ...	4 0 0	.....	.....	737

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						ENGLISH
	MISCELLANEOUS—*concld.*					
738	The National Magazine. New Series. Vol. III. No. 1.	English	Edited by Káli Prasanna De.	Miscellaneous.	Printed at 132, Lower Circular Road, and published at 32, Kálidás Sinha's Lane, Calcutta.	Printed by J. Larkins, and published by Káli Prasanna De.
739	Ditto ditto, Vol. III. No. 2.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
740	Ditto ditto, Vol. III, No. 3.	ditto ...	ditto ...	ditto ...	ditto ditto ..	ditto ditto ...
	The following work is designed for educational purposes.					
741	The Boys' Own Magazine. Vol 1. No. 1.	ditto ...	Edited by Manmatha Nath Datta.	ditto ...	Printed and published at 65-2, Beadon Street, Calcutta.	Printed by R. K. Bhattácháryya, and published by Trailokya Náth Datta.
	RELIGION.					
742	The Indian Evangelical Review for April 1889.	ditto ...	Edited by K. S. Macdonald, M.A.	Religion, C.	Printed and published at 20, British Indian Street, Calcutta.	Printed and published by D. M. Traill.
743	The Indian Church Quarterly Review. Vol. 11. No. 2.	ditto ...	Edited by A. Saunders Dyer, M.A.	ditto ...	Printed and published at 132, Lower Circular Road, Calcutta.	Printed and published by J. Larkins.
						III.—HINDI
	MISCELLANEOUS.					
63	Kshatriya Patriká. A monthly paper. Vol. VIII. No. 10.	Hindi ...	Edited by Rámdin Sinha.	Miscellaneous.	Printed and published at the Khargabilás Press, Bankipur.	Printed and published by Saheb Prasád Sinha.
64	Ditto ditto. Vol VIII. No. 11.	ditto ..	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
65	Ditto. ditto. Vol. VIII. No. 12.	ditto ...	ditto ...	ditto ..	ditto ditto ...	ditto ditto ...
66	Ditto. ditto. Vol. IX. No. 1.	ditto ...	ditto ..	ditto ...	ditto ditto ...	ditto ditto ...
						IV.—URDU
	RELIGION.					
38	Anjamani Masihi. A Christian Paper. No. 11.	Urdu ...	Munshi Enyat Ullá.	Religion, C.	Printed at the Baptist Mission Press, and published at 31, Mirzapore 2nd Lane, Calcutta.	Printed by G. H. Rouse, and published by Munshi Enayatulla.
						V.—URIYA
	MISCELLANEOUS.					
51	Ashá Hope. A monthly paper. Vol. I. No. 6.	Uriya ...	Edited by Sádhu Charan Ráya.	Miscellaneous.	Printed and published at the Victoria Press, Cuttack.	Printed and published by Abhin Nayak.
						II.—BI-LINGUAL
						I.—BENGALI AND
	RELIGION.					
60	The New Light. O Banga Bandhu. A fortnightly paper. Vol. V. Nos. 13 to 24 and Vol. XIX, Nos. 13 to 24.	Bengali and English.	Edited by Nabin Chandra De.	Religion, B.	Printed and published at the East Bengal Press, Dacca.	Printed and published by Nabin Chandra De.

8	9	10	11	12	13	14	1	16	17
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PERIODICALS—concluded.									
1889.	Pages.					Rs. A. A.			
April, 5th	40	8vo dy...	1st ...	900	Printed	1 0 0	Káli Prasanna De.	Articles of literary and historical interest.	738
May, 8th	40	8vo ...	1st ...	900	ditto ...	1 0 0	ditto ...	ditto ditto ...	739
„ 19th	40	8vo ...	1st ...	900	ditto ...	1 0 0	ditto ...	Contains an account of travels through Bohemia, Vienna, and the Tyrol, by Mr. R. C. Datta.	740
April, 27th	20	8vo dy	1st ...	500	ditto ...	0 4 0	Manmatha Náth Datta, 65-2, Beadon Street, Calcutta.	.....	741
„ 1st	126	8vo dy	1st ...	400	ditto ...	1 4 0	Rev. K. S. Macdonald, 32-6, Beadon Street, Calcutta.	The usual contents	742
„ 29th	95	8vo rl	1st ...	400	ditto ...	2 0 0	A. Saunders, Dyer.	ditto	743
PERIODICALS.									
1889.									
Mar., 15th	24	8vo rl	1st ..	200	ditto ...	0 8 0	Rámdin Sinha, Khargabilas Press, Bankipur.	Has an article on the subject of educating public opinion.	63
„ 16th	23	8vo rl	1st ...	200	ditto ...	0 8 0	ditto ...	Has an article on Chinese transliteration of Sanskrit words.	64
May, 12th	24	8vo rl	1st ...	200	ditto ...	0 8 0	ditto ...	Vaishnab songs and the preparation of various kinds of sweetmeats.	65
„ 13th	24	8vo rl	1st ...	150	ditto ...	0 8 0	ditto ...	Translations from the Spectator and from Goldsmith's work.	66
PERIODICAL.									
May, 2nd	4	8vo dy	1st ...	100	ditto ...	.....	Munshi Enayatulla, 31, Mirzapore 2nd Lane, Calcutta.	The usual contents	38
PERIODICAL.									
Mar., 17th	40	8vo rl	1st ...	200	ditto ...	0 1 0	.....	In one of the articles entitled *Swádhínatá* the writer bewails the unfortunate lot of India, and asks his readers to cultivate a love of independence. In another Mazzini is praised as the liberator of his country.	51
PERIODICALS.									
ENGLISH PERIODICALS.									
April, 10th	71 sheets.	F cap.	1st ...	200	ditto ...	3 0 0	.....	An organ of the Navabidhán Church containing the history of the missionary work of that Church during the year 1888.	60

1	2	3	4	5	6	7
Number.	Title (to be translated into English when the title-page is not in that language).	Language in which the book is written.	Name of author, translator, or editor of the book, or any part of it.	Subject.	Place of printing and place of publication.	Name or firm of printer, and name or firm of publisher.
						II.—BENGALI AND
	MEDICINE.					
61	Chikitsá Darpan. The Medical Journal. A Monthly Paper. Vol. II. No. 8.	Bengali and Sanskrit.	Edited by Rajani Kánta Mukharji.	Medicine. E. and N.	Printed at 37, Mochhuá-bazar Street, Calcutta, and published at Mollábelia, Nuddea.	Printed by Sarat Chandra Deb, and published by the Editor.
62	Ditto. ditto. Vol. II. No. 9.	ditto ...	ditto ...	ditto ...	ditto ditto ...	ditto ditto ...
						III.—TRI-LINGUAL
	MISCELLANEOUS.					I—BENGALI, ENGLISH, AND
	The following works are designed for educational purposes.					
1	The Students' Weekly. Standard No. 1.	Bengali, English, and Sanskrit.	Edited by Ashutosh Mitra.	Miscellaneous.	Printed at 78, Amherst Street, and published at 79, Cornwallis Street, Calcutta.	Printed by Bánikánta Basu, and published by the Star Depository.
2	Ditto ditto. Standard No. 2.	ditto ...	ditto ...	ditto ...	Printed and published at 78, Amherst Street, Calcutta.	Printed by Ambiká Charan Shom, and published by the New Britannia Press Depository.

Quarter ending 30th June 1889—concluded.

8	9	10	11	12	13	14	15	16	17
Date of issue from the press, or place of publication	Number of sheets, leaves, or pages.	Size.	First, second, or other edition.	Number of copies of which the edition consists.	Printed or lithographed.	Price at which the book is sold to the public.	Name and residence of proprietor of copyright, or any portion of it.	Remarks.	Number
SANSKRIT PERIODICALS.									
1889.	Pages.					Rs. A. P.			
Feb, 25th	22	12mo rl	1st ...	500	ditto ...	0 4 0	Rajani Kánta Mukharji, Nuddea.	The Sanskrit portion contains the chapter on the medicines of fever from a Sanskrit work entitled Jogámritam, which treats of medicines prepared by the combination of a variety of drugs.	61
Mar., 10th	24	12mo rl	1st ...	500	ditto ...	0 4 0	ditto ..	ditto ditto ...	6
PERIODICALS.									
SANSKRIT PERIODICALS.									
Mar, 10th	48	12mo dy	1st ..	1,000	ditto ...	0 1 0	[illegible]	Designed for the use of students in the higher classes of English schools.	
May, 6th	24	12mo dy	1st ...	1,000	ditto ...	0 1 0	[illegible] ..	ditto ditto ...	

1	2	3	4	5	6	7
Number.	The title of the book and the contents of the title page, with a translation into English of such title or contents when the same are not in the English language.	The place of printing and the place of publication.	The name or firm of the printer, and the name or firm of the publisher.	The date of issue from the press, or of publication.	The name and residence of the proprietor of the copyright or of any portion of such copyright.	The date on which the entry was registered.
				1889.		
997	Komal Kabitá. Easy Verses.	Printed and published at the Girish Press, Dacca.	Printed by Kalimuddin, and published by Hara Kumár Bose.	25th March ...	Káli Prasanna Ghosh, Dacca.	.....
998	Pati Sevá. A book on the duties of Wives towards their Husbands.	Printed and published at the Ramendra Press, Noakhali.	Printed and published by Muhammad Yusaf Ali Munshi.	10th July ...	Muhammad Yusaf Ali, thana Haksham, village Chandame.	.....
999	Medical Hints for the Hills.	Printed and published at Lochnagar, Darjeeling.	Printed and published by Nanda Lál Ráya.	15th Aug. ...	Dr. S. O. Bishop, Darjeeling.	.....
1000	Adab-ul. Mufrad. Lessons on Morals and Manners.	Lithographed and published at Arrah.	Lithographed by Muhammad Idris, and published by Abu Muhammad Ibrahim.	7th April ..	Abu Muhammad Ibrahim, Arrah.	.....
1001	Musnad-i-Imam Safái. Imam Safái's Throne.	ditto ...	ditto ...	20th Mar. ...	ditto ...	.....
1002	Saral Dhárápát. Easy Arithmetical Tables.	Printed and published at the Roy Press, Bogra.	Printed by Binod Bihári Banerji, and published by Náráyan Chandra Bhattácháryya.	22nd Feb. ...	.....	.....

The Catalogue of Books received in the Bengal Library during the Second Quarter ending 30th June 1889 contains the following :—

No.	Language.	Books.		Total.
		Non-educational.	Educational.	
	Uni-linguals.			
1	Arabic	2	.....	2
2	Assamese	3	3	3
3	Bengali	178	240	418
4	English	29	58	87
5	Hindi	36	9	45
6	Musalmani-Bengali	24	.....	24
7	Nepalese	1	.....	1
8	Persian	.....	2	2
9	Sanskrit	28	1	29
10	Urdu	4	.....	4
11	Uriya	10	15	25
	Total Uni-linguals ...	315	328	643
	Bi-linguals.			
1	Arabic and Musalmani-Bengali	1	.....	1
2	Arabic and Urdu	1	.....	1
3	Bengali and English	4	25	29
4	Bengali and Pali	1	.....	1
5	Bengali and Sanskrit	27	5	32
6	English and Hindi	.....	1	1
7	English and Sanskrit	.....	1	1
8	English and Uriyá	.....	1	1
9	Persian and Urdu	1	.....	1
10	Sanskrit and Uriya	1	.....	1
	Total Bi-linguals ...	36	33	69
	Tri-linguals.			
1	Bengali, English, and Sanskrit	.....	3	3
	Total Tri-linguals ...	.....	3	3
	Uni-lingual Periodicals.			
1	Bengali Periodicals	64	.....	64
2	English Periodicals	9	1	10
3	Hindi Periodicals	4	.....	4
4	Urdu Periodicals	1	.....	1
5	Uriya Periodicals	1	.....	1
	Total Uni-lingual Periodicals ...	79	1	80
	Bi-lingual Periodicals.			
1	Bengali and English Periodicals	1	.....	1
2	Bengali and Sanskrit Periodicals	2	.....	2
	Total Bi-lingual Periodicals ...	3	.....	3
	Tri-lingual Periodicals.			
1	Bengali, English, and Sanskrit Periodicals	.....	2	2
	Total Tri-lingual Periodicals ...	.....	2	2
	Grand Total of Books, &c., &c. ...	433	367	800

Calcutta;

The 5th December 1889.

HARAPRASAD SHASTRI,

Offg. Librarian of the Bengal Library and Keeper of the Catalogue of Books under Section XVIII, Act XXV of 1867.